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THE UNIVERSITY OF ALBERTA

ECONOMIC ANALYSIS OF THE ROLE OF PRIMARY CREDIT CO-OPERATIVES IN AGRICULTURAL DEVELOPMENT: A CASE STUDY IN ANDHRA PRADESH, INDIA

NATA DUVVURY (C)

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF ARTS

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THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled Economic Analysis of the Role of Primary Credit Co-Operatives in Agricultural Development: A Case Study in Andhra Pradesh, India submitted by Nata Duvvury in partial fulfilment of the requirements for the degree of Master of Arts.

J. A. Veeman
Supervisor

R. A. Pendergast

Date April 26, 1976

ABSTRACT

This thesis is concerned with an economic appraisal of the role of primary credit co-operatives in Indian agricultural development with special reference to a case study in the state of Andhra Pradesh in South India. With the advent of the "green revolution", the need for viable supportive institutions such as credit co-operatives was recognized. However, the broader questions of the role and of the timing of institutional change in the development process have been controversial and under-researched.

A major objective of co-operative credit institutions in India is their role as an agent of adoption of improved agricultural technology. A related concern of primary credit co-operatives is to ensure that the additional production and income generated by new technology is more equitably distributed. In the light of these objectives, this study focuses on an evaluation of a particular society (the Palmakul Co-operative Rural Bank).

A historical review and analysis of the development of co-operative credit societies in India revealed two major problem areas: first, the policy of open membership which has generally led to the domination of the co-operative society by the rural elite--landlords, moneylenders, and merchants; second, the inadequate utilisation of the co-operatives for credit in conditions of an unassured water supply. These problems affect the operation of the Palmakul Co-operative Rural Bank, although, on the basis of several financial performance criteria, the Bank can be judged to be internally efficient. A delineation of the power structure of the Palmakul Co-operative Rural

Bank indicated the control of the society by a rural elite. This may be an explanation for a bias in the disbursement of loans (especially loans for purposes of irrigation) towards the large farmer. Another possible explanation for this inequity in loan disbursement may be that the society operates in an imperfect rural system, that is, imperfect factor and output markets. A major conclusion of the study is that the co-operative society could not affect the imperfect market structure of the rural economy but could only absorb the biases of the system. As a consequence, although the society might disseminate new technology, an equitable distribution of the income generated by this technology might not be realised until there develops an integrated institutional framework which eliminates the imperfections of the rural system.

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CHAPTER I

INTRODUCTION

Agricultural development in developing countries is not only dependent on the adoption of improved technology but also on a supporting institutional framework. This study is concerned with one particular institution--the primary credit co-operative society--and its role in the modernisation of agriculture in rural India. After a presentation of the historical development of credit co-operatives in India, the study will focus on the agricultural scene in India and the impact of the new cereal technology on foodgrain production. Following this discussion, the study will be concerned with an evaluation of the impact of primary credit co-operative societies on the modernisation process of agriculture. In particular, a case study of the role of a typical primary credit co-operative in Hyderabad District in the south Indian state of Andhra Pradesh will be undertaken. A theoretical model of the structure of input and output markets in the rural sector in India will be introduced to aid in the explanation of the performance of the co-operative credit societies. The primary credit co-operative society is one type of institution, together with improved technology which can aid in modernising agriculture in India.

A discussion of the nature and scope of the problem, an outline of the research objectives, and a discussion of the nature and format of the study will be the focus of this chapter.

Nature and Scope of the Problem

In the nineteen sixties, technical change came to be viewed

as the predominant force behind rapid modernisation of agriculture in developing countries. When the application of new techniques did not yield the expected increases in production, attention once again turned to institutional constraints.[1] The complex questions of the role of institutions in agricultural modernisation and the precise nature and timing of institutional change in the development process remain controversial, unresolved, and comparatively under-researched. For example, there is a difference of opinion with respect to the timing of institutional change. One school of thought postulates that institutional change occurs as a consequence of technical change. As Hayami and Ruttan note: "In our view, institutional reform is appropriately viewed more as a response to the new opportunities for the productive use of human and material resources opened up by advances in technology than as a precondition for agricultural development."[2] Myrdal, who is in opposition to this view, says:

> The major theme of our analysis will be that the success of technological reforms, designed primarily to increase the cultivated acreage and raise agricultural yields through variations in techniques and the input of capital, hinges largely on the extent of prior, or at least simultaneous, institutional changes.[3]

---

[1] Yujiro Hayami and Vernon W. Ruttan, Agricultural Development: An International Perspective (Baltimore: The Johns Hopkins Press, 1971). They note: "One of the basic premises of the agricultural development and technical assistance programs of the late 1940's and early 1950's was that institutional constraints represented the major barrier to technical change and to modernization in agriculture."

[2] Ibid, p. 258.

[3] Gunnar Myrdal, Asian Drama: An Inquiry into the Poverty of Nations, Vol. II (New York: Pantheon, 1968), p. 1260

No matter which position will bear the test of reality, the crux of the matter is that institutions are just as crucial to the modernisation process as technical innovations.

Based on this premise, the primary credit co-operative in India has been envisioned as playing a key role in the modernisation and development of the rural economy. The major objectives of the co-operative are to reduce the dependence of the small farmer on money-lenders[1] and to encourage and aid the use of new improved technology.[2] Of the voluminous amount of literature on co-operatives in India, a significant portion of that literature probes the question of why co-operatives have been relatively unsuccessful historically as a catalyst of agricultural development in the Indian context.

Myrdal gives a general criticism of the primary credit co-operative and concludes that they have been unsuccessful in eliminating rural disparities.[3] Other researchers have delineated some of the variables crucial to the failure or success of the primary credit co-operatives. The power structure, rainfall, and irrigation facilities are some of the variables most frequently mentioned. Other writers focus on the fundamental question of the demand for credit. Their conclusion is that the problem is not one of an inadequate supply of credit, but one of lack of effective demand due to the lack of credit-

---

[1] Daniel Thorner, Agricultural Cooperatives in India (Bombay: Asia Publishing House, 1965), p. 8.

[2] R.N. Tewari, Agricultural Planning and Cooperatives (Delhi: Sultan Chand, 1972), p. 2.

[3] Myrdal, Asian Drama, Vol. II, p. 1335.

worthiness on the part of the majority of farmers. A further, and not unrelated factor affecting the performance of primary credit co-operatives is the structure of the input and output markets in the rural sector. Consequently, there are many possible factors underlying the problems of the primary credit co-operatives in India and this study is just a continuing effort to delineate those factors more precisely.

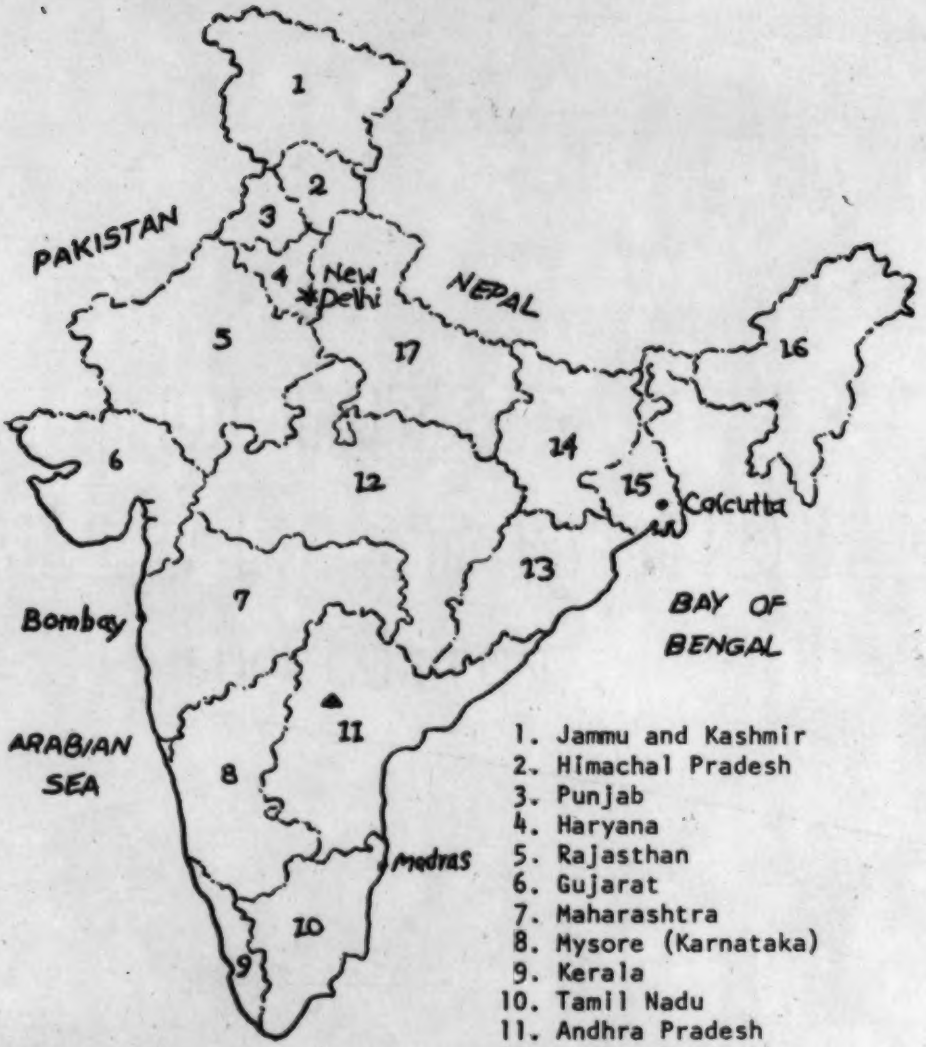
Though co-operatives are beset by problems, they potentially have an important role in the transformation of Indian agriculture. The significant contribution they can make is with respect to the diffusion of new agricultural technology. In India today, agricultural development is still a vital and important problem if India is to improve its level of performance in agricultural, and particularly foodgrain production. The primary credit co-operative society can aid in the resolution of this problem by being an active agent of diffusion with respect to new technical innovations and of provision of the additional credit requirements created by these innovations. Consequently, this study will attempt to shed light on the problems of primary credit co-operatives and make policy recommendations with respect to the improvement of the performance of the primary credit co-operatives so they can better fulfill their role in the modernisation process of Indian agriculture.

Research Objectives

The general objective of this study will be an economic appraisal of the role of primary credit co-operatives in Indian agricultural development with special reference to a case study of the Palmakul Co-operative Rural Bank in Andhra Pradesh (see Figure 1-1). Specific objectives are:

FIGURE 1-1

MAP OF INDIA



1. Jammu and Kashmir
2. Himachal Pradesh
3. Punjab
4. Haryana
5. Rajasthan
6. Gujarat
7. Maharashtra
8. Mysore (Karnataka)
9. Kerala
10. Tamil Nadu
11. Andhra Pradesh
12. Madhya Pradesh
13. Orissa
14. Bihar
15. West Bengal
16. Assam
17. Uttar Pradesh
    Hyderabad District

Source: Adapted from U.S., Department of Agriculture, Accelerating India's Foodgrain Production, 1967-68 to 1970-71, by William B. Hendrix et.al., Foreign Agricultural Economic Report No. 40 (Washington, D.C.: March, 1968), p. ii.

1) to trace the historical development of credit co-operatives in India through an examination of the recommendations of various national committees formed to study the question of co-operation;

2) to cursorily examine the basis for the emphasis placed by government planners on co-operatives as a vehicle for changing agriculture;

3) to briefly describe the agricultural economy of the area under study;

4) to examine the performance of the Palmakul Co-operative Rural Bank on the basis of certain efficiency and equity criteria;

5) to delineate the power structure of the Palmakul Co-operative Rural Bank and to discuss generally its relation to the power structure in the area;

6) to briefly discuss the role of institutions in the modernisation process, the dynamics of institutional change, and the relationship of insitutional change to technical change;

7) 7) to formulate a model of the factor and product markets of the rural economy in order to delineate the constraints faced by the primary credit co-operative; and

8) to summarize the major conclusions and policy recommendations of the study with respcet to the role of primary credit co-operatives in agricultural development.

Background and Format of the Study

Field work for this study was carried out in June, July, and August of 1975 in Andhra Pradesh. Initially, trips were made to the Agricultural University of Andhra Pradesh (AUAP), Rajendranagar, to collect information and literature with respect to the problem and to discuss the problem with staff members specializing in co-operative studies. The choice of the Palmakul Co-operative Rural Bank was made

on the basis of the nearness to the city of Hyderabad and its affiliation to AUAP.

The initial trips to Palmakul were concerned with meeting the officials of the Bank and discussing and outlining the problem. Subsequent trips were made to interview farmers. Most of the interviewing was done at the co-operative society at the time of the disbursement of the fertiliser component of the crop loan. The choice of farmers was completely arbitrary--that is, those farmers willing to talk and to spare the time were interviewed. Most of the interviewing was subject to the constraint of lack of privacy; the building was structured in a way that there were only two offices, with no doors. Unfortunately, the interviewee was usually surrounded by five or six farmers who may or may not have been potential respondents but who entered into a discussion of the questions. Sometimes the only response received would be an excited discussion by all the farmers including the respondent. As a consequence, the data is subject to certain constraints and biases and must be viewed with some circumspection.

This study has the following format. Chapter II presents the historical development of credit co-operatives in India. A related appendix describes the details of the crop loan system. Chapter III focuses on the basis for increased production in Indian agriculture; the conclusion is that productivity is the crucial variable. The study turns to a description of the increase in the consumption of inputs and the role of co-operatives in the distribution of these inputs. In Chapter IV, the study is more narrowly focused upon the Palmakul Co-operative Rural Bank and the area served by this institution. First, the agricultural economies of the district and the villages served by the co-operative

society are described. The study then focuses on an economic evaluation of the performance of the Palmakul Co-operative Rural Bank. The power structure of the co-operative society is also delineated. Chapter V is concerned with a discussion of institutional change, as well as an examination of a model of the rural economy. Finally, in Chapter VI, the major conclusions and policy implications of the study are summarized.

CHAPTER II

THE DEVELOPMENT OF CREDIT CO-OPERATIVES IN INDIA

The major objective of this chapter will be to trace the historical development of credit co-operatives in India. Such an analysis will centre on an examination and criticism of the recommendations of various national committees formed to study the question of co-operation in India. As a result, this analysis will shed light on the areas which have been problems for the credit co-operatives since their inception.

Historical Development of Credit Co-operatives in India[1]

Co-operatives are not indigenous institutions of the Indian rural system. There may have been some pre-existing tendencies towards co-operation in the areas of public works and cultivation, but the areas of credit and marketing were functions of certain castes historically.[2] The necessity of introducing this basically "Western" institution was, in part, the consequence of British domination. John Mellor points out that increasing British domination "was in many respects causal and in any case coincident with increased monetization in rural India."[3] Those Indians who became debtors due to the increased

---

[1]This discussion draws mainly upon the material in R.B. Tyagi, Recent Trends in the Co-operative Movement in India (Bombay: Asia Publishing House, 1968); and M.M. Bhalerao, Agricultural Cooperation in India (London: Plunkett Foundation for Cooperative Studies, 1970).

[2]I.J. Catanach, Rural Credit in Western India, 1875-1930, (Berkeley: University of California Press, 1970). p. 229.

[3]John, Mellor, "The Evolution of Rural Development Policy", in Developing Rural India (Ithaca: Cornell University Press, 1968) p. 61.

monetization also faced stricter enforcement of debts. The British centralized the enforcement of agreements; in particular, the moneylender could appeal to British law to uphold a case against a cultivator. As a consequence, there was an increase in land transfers to the moneylender especially in the late nineteenth century.[1] In fact, this situation was the major cause of the Deccan riots in 1875 in which the moneylenders were the focus of anger.[2] Though one can not say that the co-operative movement was a response to the Deccan riots, the riots did in fact increase awareness of a very basic problem in rural India.[3]

By the late 1800's, the beginnings of a co-operative movement could be discerned. A major proponent of this movement was Frederick Nicholson, Collector of Tinnevelly in Madras Presidency. In 1892, he was asked by the Madras Government to write a report on the feasibility of co-operative institutions. It was published in 1895 and with a shift of the persons in power in the Madras Government, the report was rebuked quite abusively. Unofficially the report circulated in the northern provinces of India but, on the whole, the matter seemed to have been dropped. Nevertheless, due to the interest of certain officials in the upper echelons of the Government of India, the

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[1] Ibid, p. 61

[2] Catanach, Rural Credit, p. 10.

[3] In fact, the Deccan Riots Commission recommended legislation to stop the transfer of land to moneylenders and began discussion on the idea of introducing "agricultural banks". But the Commission concluded that such banks should be left to private initiative since success was doubtful because peasants were still engaged mostly in transactions of kind rather than cash.

Nicholson report as well as a book by H.E.L.P Dupernex, a civilian, on the possibility of co-operatives in India, were circulated to the provincial governments in late 1900. The response, on the whole, was very negative with many officials citing examples of mistrust between various factions, therefore implying that the co-operative spirit could not be fostered.[1] Further support was received for the co-operative movement by the Report of the Famine Commission in 1901 which urged measures calling for the implementation of a co-operative societies act.[2] Since in the upper reaches of the government there was support for the movement, little time passed before the Co-operative Credit Societies Bill of 1904 was enacted.

The Bill called for a special officer in each provincial government to act as the Registrar of Co-operative Societies. The Registrar is still an active functionary in the co-operative system today. The Bill also called for open membership; the moneylender then, was included in the system. The societies were to provide short-term loans[3] and the liability of the societies was to be unlimited. Loans were to be advanced only on the basis of personal or real security; to make advances against crops was considered quite unsuitable.[4] Grants from the government on a rupee-to-rupee basis up to Rs. 2,000 would be extended only when the society had managed to collect some deposits.

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[1] Catanach, Rural Credit, p. 47.

[2] Ibid, p. 48.

[3] Loans for consumption, then, were left to the purview of the moneylender.

[4] Catanach, Rural Credit, p. 44.

This final restriction severly limited the number of societies that could be formed in the initial years. At the end of 1906, there were thirty-one societies registered in Bombay and sixty-five in Punjab.[1]

To encourage further growth of co-operative societies, the Act of 1912 was passed which "contained provisions for the registration of all types of co-operative societies, including central financing agencies and supervising unions."[2] The Act specified that: the liability of a central bank was to be limited; the percentage of share capital held by an individual could not exceed twenty per cent of total share capital in a limited liability society or the value of Rs. 1,000; priority was to be given to the claims of the society as against other creditors; the society could set off the shares, deposits, and other holdings of the member against his overdues; societies could receive deposits and loans from non-members; and one-fourth of the profits of the society had to be used to constitute a fund called the Statutory Reserve Fund. It also extended the powers of the Registrar to investigate the constitution, working, and financial conditions of the societies and to liquidate the societies. Though this Act infused some enthusiasm into the movement and there was a growth of co-operative societies, later reports found that there was a lack of a truly co-operative spirit and a danger of powerful interests controlling the primary societies.[3] There was also a recognition that the co-operative failed to meet the consumption needs of the farmer and that it should

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[1] Ibid, p. 58.

[2] Bhalerao, Agricultural Cooperation in India, p. 43.

[3] Ibid, p. 44.

have stronger ties with marketing.[1]

In 1915, a committee headed by Edward Maclagan, Secretary of the Revenue and Agriculture Department, was formed by the Government to investigate the working of the co-operative societies. One of the reasons for the formation of this Committee was that the co-operative societies were increasingly relying on mortgages of land to extend loans. This practice limited the expansion of the co-operative movement because many peasants did not have land to mortgage.[2] The major recommendations of the Committee were: loans for productive purposes only should be extended; loans should be given only to members (in opposition to the Act of 1912); the area of operation should be small so that the principles of co-operation--mutual help, social cohesion, and mutual knowledge--could be effective; there should be periodic audits to inspire confidence in the societies; and there should be organisation of sale and purchase societies.[3] The policies of open membership and a reserve fund were reaffirmed. But the Committee did not specifically mention the very serious problem of what should be the basis for the extension of loans.

Despite the fact that the Committee made no recommendations on this major issue, the co-operative movement continued to grow. In 1919, under the Montagu-Chelmsford Constitutional Reforms, co-operation

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[1]These two points were made in the Report of the Agriculture Finance Committee (1944) and Report of the Cooperative Planning Committee (1945).

[2]Catanach, Rural Credit, p. 113.

[3]By sale and purchase societies, the committee meant consumer and marketing co-operatives.

came under the jurisdiction of the provincial governments. Numerous conferences were held and committees were formed, but nothing of major importance occurred until the formation of the Central Banking Enquiry Committee in 1931. This Committee's recommendations led to the creation of the Reserve Bank of India and its department, the Agricultural Credit Department, which began to supervise the co-operative movement and its development.

The next major committee to be formed was the Gadgil Committee (or the Agricultural Finance Committee) in 1944. This Committee recommended that there should be stronger ties with marketing societies. It also recommended the creation of a central agency in each province which would be aided by each State and which would provide credit through sub-agencies (district co-operative banks) to the primary co-operative societies. The logic behind this recommendation was that "the entire problem of agricultural credit could not be solved by co-operative institutions alone, single handed and that State assistance was but essential and inevitable."[1] One should mention here that this recommendation viewed the central agency strictly as a lending agency (i.e., there was no mention of subscription of share capital of the primary co-operative society by the central agency). The concept of a central agency was revolutionary and it shaped the present structure of co-operative institutions in India.

A year later, in 1945, the Cooperative Planning Committee or the Saraiya Committee was formed to "draw up a concrete plan for the

---

[1]Tyagi, Recent Trends, p. 14.

future development of the movement on systematic and sound lines ..."[1] The major recommendation of the Committee in the area of agricultural production and agricultural credit was that the credit society should not only extend loans to finance crop production but also aid in selling produce to a co-operative marketing society. The society should also supply agricultural inputs (seeds, fertilisers, pesticides, and farm implements) and try to supply basic consumption needs (cloth, sugar, salt, and other necessities). This recommendation arose out of a recognition that as long as consumption finance was in the purview of the moneylender, small farmers could not/would not use credit for production purposes and therefore could not better their low income level and break the "vicious circle". Other recommendations were that all societies should have limited liability except those societies which had been successful with unlimited liability and that the State (i.e., Government of India) should provide a large percentage of the share capital of the provincial co-operative banks. The Committee also reaffirmed the idea of open membership and declared that the minimum membership for a society was 50 members. The Committee made recommendations in many other fields of co-operation (for example, marketing and industrial co-operatives).

The most important committee of all was appointed in 1951 by the Reserve Bank of India and was known as the All-India Rural Credit Survey Committee (Gorwala Committee). This Committee was specifically appointed to undertake a comprehensive survey on a nationwide basis. The survey covered 127,343 families in 600 villages in 75 districts.

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[1] Ibid, p. 17.

Almost all literature on the co-operative movement in India refers to the findings of this Committee.

Expanding upon the recommendation of the Saraiya and Gadgil Committees with respect to State partnership, the Gorwala Committee recommended a new scheme called the Integrated Rural Credit Scheme. This scheme was composed of three aspects:

1. State partnership at all levels;
2. Linkage between credit and other processes (for example, marketing and storage); and
3. The training of efficient and responsible personnel to administer the plan.

In this scheme, the principle of State partnership was revolutionary and created the most furor. State partnership meant that either the Reserve Bank or the provincial government could subscribe to share capital of the primary co-operative society and thereby have a say in the running of the society and also nomination of individuals to the Board of Directors of the society. This is a vastly different proposition from the recommendation of the Gadgil Committee to create a central provincial agency and the recommendation of the Saraiya Committee for the State to provide a percentage of the share capital of the central provincial agency.[1]

Another recommendation that created controversy was the call

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[1] In most of the reports "State" is never defined and one is often confused if it means the Government of India or the provincial government. In most cases if the State in question is the provincial government it is mentioned so specifically. If State means Government of India, it automatically refers to the Reserve Bank of India after 1935. Yet in the case of State partnership, State refers to the central financing agency of each provincial government.

for large-sized societies with a minimum membership of 500 and a maximum membership of 1,000. This was in opposition to the recommendation of the Maclagan Committee which recommended that the area of operation and the size of the society should be small and to the recommendation of the Saraiya Committee that minimum membership should be 50. The Gorwala Committee hoped, however, that a larger society would be a more viable unit and could provide services (i.e., supplying agricultural inputs and providing links with marketing societies) more consistently. The idea of open membership was reaffirmed once again. Other recommendations were: there should be a minimum share capital set for each level of society and that it should be raised to some optimum level; members should be obligated to try and retire the State share while reaching the optimum level; loans should be extended in the form of crop-loans (a major recommendation that was not acted upon for a long period of time); the village artisan should be extended some form of consumption loan; and all societies (apex, district, and primary) should have an agricultural credit stabilization fund. The creation of stabilization funds was the other revolutionary step taken by this Committee and this action met with wide approval. These funds were encouraged to be maintained so as to tide over the societies (and members) in times of heavy arrears and natural calamities.

The debate that took place because of the recommendations of the Gorwala Committee was most intense at the Conference of the National Development Council headed by Prime Minister Nehru in November, 1958. Here it was resolved that the co-operative should take the village as the primary unit of operation unless the village was so small that the society could not be a viable unit. Even then, it should not go beyond

two miles. This is a reaffirmation of the recommendation of the Maclagan Committee and based on a similar logic that a small society would better fulfill the principles of co-operation. Also, the member of the conference felt that the co-operative society should work with the panchayat (local unit of self-government) as much as possible. The Council further resolved that the co-operative should be responsible for carrying out programs to use existing irrigation facilities fully, to apply new farming techniques, and to produce green and organic manures. Targets for coverage and amount of credit to be extended were also set. To study what changes were necessary to implement these resolutions, a Working-Group on Co-operative Policy (Damle Committee) was formed in December, 1958.

This Committee recommended that the primary co-operative society should not "combine the credit function which was of primary importance to all the people in the village with such other functions in which only a few people might be interested ..."[1] (for example marketing or programs for soil erosion). It also recommended that limited liability should be adopted. However, it recommended against State partnership in the primary societies until the experience of the large-sized co-operatives was evaluated. It made other recommendations concerning how to reach the target membership.

In September, 1959, the Mehta Committee was formed to study the question of how to expand credit for agricultural production. This Committee recommended that a viable society should not extend over four miles or over a population of 3,000. Viability was defined in terms of

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[1] Tyagi, Recent Trends, p. 122.

the co-operative having "the ability not only to command the service of competent personnel but at the end of the stipulated period of three years it should be able to meet fully the expenditure incurred on such personnel as well as the expenditure on rent, audit and supervision and to provide for education fund, reserves and reasonable return on share capital."[1] Other important factors were the linkage between credit and marketing, the extent of supervision over credit use, the extent of mobilisation of rural savings, and the extent of distribution of essential commodities. State partnership was accepted but a maximum limit of Rs. 10,000 and a minimum limit of Rs. 1,000 were set. In the area of determining credit for the borrower, the Committee recommended that the effect of cultivation methods on income, and therefore on repaying capacity, should be taken into account. In addition, members should be given loans whether or not they owned land, especially if two sureties could be produced.[2] Maximum borrowing capacity was set at ten times the paid-up share capital of the member in the society. For loans above Rs. 1,000, mortgage of land was recommended. The Committee also made other recommendations concerning the credit limit of the society (eight times its owned funds), the role of State partnership, and the problem of how to increase deposits.

The final committee to be considered in this study was formed in 1966 by the Reserve Bank of India--the All-India Rural Credit Review

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[1] Ibid, p. 187.

[2] This practice is subject to possible abuse, especially when one member of the society can pressure another member to receive a loan which would flow to the first member (highly probable in the case of landlord and tenant).

Committee. The task of this Committee was to "review the supply of rural credit in the context of the Fourth Five Year Plan (1969-73) generally and, in particular, of the requirements of the intensive programmes of agricultural production in different parts of the country."[1] Field studies were conducted in Intensive Agricultural District Programme (hereafter known as IADP) areas under the High Yielding Variety Programme (HYVP). Studies were also conducted on primary land development banks (long term credit). The major recommendation in regard to credit co-operatives was that the crop loan system be implemented in all areas as soon as feasible. All other recommendations were corollaries of this major recommendation. A rather unique recommendation was that cultivators below a certain minimum farm size should be given the full amount of the crop loan while those above a certain maximum farm size should be given a smaller amount than those who fall in between the two limits (the latter would receive a certain proportion of the full amount). This hopefully would encourage large farmers to finance production to a greater extent out of their own resources. Unfortunately, this recommendation has not been widely implemented. Another important recommendation was that in policy with respect to loaning and recovering, seasonality should be observed. Due dates should be some time after harvest so as to allow discharge of the produce at a reasonable price, the logic being that immediately after harvest prices would be low. Loan procedures should be eased so that the cultivator receives aid when he needs it (i.e., at the start of production and during the period of transplanting). Also the

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[1] Report of the All-India Rural Credit Review Committee. (Bombay: Reserve Bank of India, 1969), p. 4.

Committee reaffirmed the principles that the loan should not be based on the farmer's ability to mortgage. The Committee made many other recommendations concerning recoveries and overdues and the promotion of viable units. The Committee also recognized that the primary co-operative societies could not meet all the needs for credit in the rural areas and therefore called for the extension of the commercial banks into the countryside. The banks, it was suggested, should concentrate on viable cultivators (presumably large farmers) and co-operatives which provide services (for instance, marketing co-operatives, processing co-operatives, and land banks). Their recommendation that large farmers not receive the full amount of a crop loan was intended to push large cultivators to the commercial banks for their finance. Overall, there was an emphasis on a multi-agency approach, so that the primary co-operative societies would be primarily concerned with the provision of credit for small and marginal farmers.

Many of the recommendations made by the various committees were similar in character though worded differently. That many have been adopted can be substantiated by looking at the present credit co-operative structure in India.

The present co-operative system in India consists of three levels of administration. The basic units are the primary co-operative societies which vary in size and purpose and have open membership. Above them are district co-operative banks and at the top, is a state co-operative bank which provides the link with the Reserve Bank of India. Most of the societies are of limited liability; there is State partnership at all levels; and the Reserve Bank of India aids the primary societies indirectly through the apex banks. In 1966, the

Reserve Bank of India issued the directive that all primary co-operative societies should operate on the basis of the crop loan system. Moreover, at the village level, there now exist some branches of commercial banks.

A Critique of the Recommendations on Credit Co-operatives

There are several points on which all the committees are silent. One is with respect to the constant reaffirmation of the principle of open membership. This is quite curious in view of the fact that many have stated the basic problem of the primary co-operative society is that it is in the control of vested interests. This point is neatly made by Tyagi who has summarized the feelings of the Gorwala Committee as follows:

> The co-operative credit structure has to face the strong and forceful opposition of the village trader and moneylender and similar other vested interests, very often found inside the society itself in the form of director, sarpanch [president of Panchayat] or an influential member using all his influence and energies in sabotaging the organisation itself from within.[1]

Catanach points out that the early co-operatives also faced this problem of control by moneylenders and large landowners.[2] He concludes that this is a consequence, to some extent, of the policy of open membership. Daniel Thorner points out that the leadership of the co-operatives is in the hands of those--the moneylenders, landowners, and

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[1] Tyagi, Recent Trends, p. 49.

[2] Catanach, Rural Credit, p. 66

merchants[1]--who use such institutions to reinforce the traditional power structure. In a recent article, Sib Nath Bhattacharjee contends: "The men of vested interests have been dominating most of these societies to serve their own interests at the expense of the majority."[2] Dantwala confirms this when he notes that "many well-to-do farmers borrow from institutional agencies to avail of the subsidy element in it (especially co-operative credit) and use their own funds for 'other purposes'."[3] It has also been found that large farmers relend the co-operative loan at a higher interest rate to non-members. But this abuse of and bias of the co-operative society is, as V.M. Jakhade states, "the result of the socio-economic conditions and power structure in the villages and not of any bias of the agricultural policy makers."[4] The All-India Rural Credit Survey Committee reaffirms this when it says: "the main causes [of the bias of the co-operative societies] are much deeper. They are largely socio-economic in character and are relatable to certain fundamental weaknesses which

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[1]Thorner, Agricultural Cooperatives, p. 33.

[2]Sib Nath Bhattacharjee, "Leadership in Rural Cooperatives on Cross-Roads", Indian Cooperative Review, VII, 3 (1970), p. 356.

[3]M.L. Dantwala, "Preface", in Agricultural Development in Developing Countries--Comparative Experience (Bombay: The Indian Society of Agricultural Economics, 1972), p. 32.

[4]V.M. Jakhade, "Credit Policy and Agricultural Development", in Agricultural Development in Developing Countries, p. 400.

have developed in the rural structure."[1] However, Jakhade misses an essential point with respect to the connections between the rural elite and agricultural planners, It is highly probable in India that there are close ties between these two groups through a nexus of caste, education, and wealth.[2] Dantwala hints at such a possibility when he states: "The suggestion that the cooperative credit should be available only to the 'small' farmer for creditworthy purposes and by implication should not be available to the 'rich' farmer--who may borrow from the commercial banks--has however not found favour with the cooperatives or even the policy maker."[3]

Although, in 1966, the All-India Rural Credit Review Committee did recommend the entrance of commercial banks into the area of rural finance, progress has been slow. Only recently have there been renewed calls for a multi-agency approach to rural credit. As Jain says:

> In the present situation of changing agriculture and the emergence of significant developments in the area of term-credit related to the new technology, viz phenomenal increase in the demand for credit shift towards long term-credit and the need for providing credit for the small and less privileged cultivators there is ample scope for functioning and active participation of other

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[1]Reserve Bank of India, All-India Rural Credit Survey, Report of the Committee of Direction, The General Report, Vol. II (Bombay), p. 4, quoted in V.B.R.S. Somasekhara Rao, "Crop Loan System through Cooperative Central Banks in Andhra Pradesh", Indian Cooperative Review, VII, 2 (1970), p. 224.

[2]Catanach approaches this point tangentially when he delineates the castes of those in power in both rural and urban areas. See also Keith Griffin, The Political Economy of Agrarian Change: An Essay on the Green Revolution (London: Macmillan Press, 1974).

[3]Dantwala, "Preface", p. 33.

> other institutional agencies in the sphere meeting the enlarged demand for credit.[1]

This point has been recently emphasized by Sarveswara Rao, et. al. in a recent article.[2] These authors show that as agricultural productivity changes due to changing technology, the institutional framework must also change. Therefore, an area with low agricultural productivity and traditional methods of cultivation may have/should have a different institutional framework than an area with high productivity and new methods of cultivation.

Despite the call for a multi-agency approach since 1966, "commercial banks have come into the picture for the last three years only [1969-71]".[3] Literature is now emerging on the successes and problems of commercial banks. Studies have shown that banks have increased farm returns and that there are no overdues in the villages served by the banks.[4] However, a similar problem appears with banks as with co-operatives--small farmers are at a disadvantage in obtaining loans. This may be a particularly crucial problem in areas with modern cultivation methods where emphasis may be on non-government agencies to provide credit.

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[1] H.C. Jain, "Sources of Credit and Changes in their Relative Importance", Indian Cooperative Review, IX, 4 (1972), p. 507.

[2] B. Sarveswara Rao and others, "Institutional Framework for Agricultural Development", in Serving the Small Farmer: Policy Choices in Indian Agriculture, ed. by Guy Hunter (London: Reading University/ Overseas Development, 1974).

[3] A.S. Shah, "Rapporteur's Report on Institutional Credit for Agriculture", Indian Journal of Agricultural Economics, XXVI (Oct/Dec 1971), p. 455.

[4] Ibid, p. 455.

Another area on which the recommendations of the committees were completely silent, though it is a major restriction on the growth and working of co-operatives, concerns the provision of an adequate water supply. The Nagpur Resolution (Conference of National Development Council in 1958) mentions that the co-operative should oversee the full utilization of available irrigation facilities but this is never mentioned again by any committee. Catanach reveals the importance of this factor when he notes: "That in Dharwar a more reliable rainfall than that of the Deccan provided the basis of a reasonable prosperity which was so often lacking amongst the peasantry to the north and south."[1] Dharwar on the whole had more successful co-operatives than the Deccan region. Frankel in her discussion of the crop loan makes the point that small farmers do not borrow to the limit because of inadequate water supply.[2] The farmer at the margin is especially unwilling to use the fertiliser component because the benefits of such use are uncertain with an unreliable water supply. This point is supported by both Desai and Desai and Thiesehusen.[3] Other writers are beginning to recognize that infrastructure such as irrigation facilities is a necessary precondition for credit institutions to have a semblance of success.[4]

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[1] Catanach, Rural Credit, p. 65.

[2] Francine Frankel, India's Green Revolution: Economic Gains and Political Costs (Princeton: Princeton Univ. Press, 1971), p. 68.

[3] B.M. Desai and D.K. Desai, Farm Production Credit in Changing Agriculture (Ahmedabad: Indian Institute of Management, 1971), p. 98; and W. Thiesenhusen, "What Changing Technology Implies for Agrarian Reform", Land Economics, L (Februrary 1974).

[4] Sarveswara Rao, "Institutional framework for agricultural development", p. 56.

To summarize, in the historical development of co-operatives, certain problem areas were inadequately dealt with by the various national committees. These areas, as we have seen, are the policy of open membership and the provision of an adequate water supply. The policy of open membership is crucial because of the consequent control of the co-operatives by vested interests as has been detailed in this chapter. An adequate water supply has been determined to be important in the adoption of new technology and consequently the utilisation of the co-operatives for credit. These two problem areas are crucial to the success of co-operatives in fulfilling their objectives.[1]

[1] See Chapter I, p. 3.

CHAPTER III

ROLE OF CO-OPERATIVES IN FOODGRAIN PRODUCTION

The focus of this chapter will be to demonstrate the importance of the co-operative credit institution in a situation of changing agriculture. It will be shown that productivity change has become the major contributor to changes in agricultural production. As C.H. Hanumantha Rao says: "Capital, together with scientific knowledge, has already become a major source of growth, and its significance is rapidly increasing."[1] Indeed, the significance of the application of science and technology to the transformation of traditional agriculture is seen empirically in the "green revolution" and seen theoretically in a dominant model of agricultural development--Schultz's high pay-off input model.[2] The modernisation of traditional agriculture requires modern inputs--for example, the employment of high yielding varieties and the application of fertilisers and pesticides. Government planners in India have viewed the co-operative credit institution as a prime agent for the distribution of modern inputs. If it can be shown that the primary co-operative societies take an active role in the distribution of these inputs, one can conclude that the societies have some effect in changing agricultural production.

The Agricultural and Foodgrains Sector in India

Beginning with W.A. Lewis in 1954, theorists in the field

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[1] C.H. Hanumantha Rao, "Farm Size and Credit Policy", Economic and Political Weekly, V, 52 (1970), p. A-158.

[2] For further discussion of this model see Hayami and Ruttan, Agricultural Development, p. 39.

of economic development have emphasized the importance of the role of agriculture.[1] This emphasis stems not only from the fact that agriculture is the largest contributor to the GNP of most developing countries[2] but also from the belief that an efficient and productive agriculture will release resources and provide income transfers to the other sectors in the economy.[3] Following this line of reasoning, it is essential to evaluate the growth pattern of agriculture to predict the growth potential of a developing country.

Agricultural Output: An Appraisal of Foodgrain Performance

Since foodgrain production is the most important component of agricultural production in India, the growth performance of foodgrains can be regarded as an approximate barometer of overall agricultural performance. The historical growth in foodgrain output in India has not been steady nor particularly high. During the First-Five Year Plan (1950-51 to 1955-56), food output increased at the rate of seven per cent per annum whereas by the end of the Second Five Year Plan

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[1] W.A. Lewis, The Theory of Economic Growth (Homewood, Ill: R.D. Irwin, 1955).

[2] In India for example, agriculture's share of the GNP was approximately 45 per cent in 1970 and its share of the labour force was 69 per cent. See T.S. Veeman, Economic Consequences and Policy Implications of the "Green Revolution" in India with Particular Emphasis on Water Resources Policy in Punjab, Ph.D. Thesis (Berkeley: Univ of California, 1975), p. 14.

[3] For a further elucidation of the role of agriculture in economic development see Hayami and Ruttan, Agricultural Development; and Bruce F. Johnston, "Agriculture and Structural Transformation in Developing Countries: A Survey of Research", Journal of Economic Literature, 8 (June 1970), pp. 369-404.

(1956-57 to 1961-62), food output increased only at three per cent per annum.[1] In the early sixties, the performance was not much better as seen by the fact that in 1963-64 foodgrain production was 80.5 million metric tons, a slight increase over the 1953-54 figure of 72.2 million metric tons. The record production in 1964-65, prior to the green revolution, was due to unusually good weather (i.e., rainfall that was neither too little nor too much). In the next two years, 1965-66 and 1966-67, there was widespread drought and production dropped near to the 1954 level. In Table 3-1, recent experience from 1968-69 to 1973-74 is depicted.

TABLE 3-1

PRODUCTION OF FOODGRAINS, 1968-69 TO 1973-74, INDIA
(Million Metric Tons)

Crop	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74
1 Rice	39.76	40.43	42.22	43.07	38.63	43.7
2 Wheat	18.65	20.09	23.83	26.41	24.92	22.1
3 Maize	5.70	5.67	7.48	5.10	6.21	
4 Jowar	9.89	9.72	8.10	7.72	6.44	28.1
5 Bajra	3.80	5.33	8.03	5.32	3.80	
6 Other cereals	5.88	6.57	6.94	6.46	5.71	
7 Pulses	10.42	11.69	11.82	11.09	9.49	9.7
8 Total	94.10	99.50	108.42	105.17	95.20	103.6

Sources: Government of India, Planning Commission, Draft, Fifth Five Year Plan, 1974-79, Vol. II. (New Delhi: 1975), p. 46; and "Record and Statistics, Food Situation: 1974-75", Eastern Economist, 65 (July 1975), p. 44.

One can observe that in all crops, except maize, there was a steady

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[1] W. David Hopper, "A Perspective on India's Food Production", Eastern Economist, 66 (January 1970), p. 183.

increase up to 1972-73. In that year, there was widespread drought and production in all crops except maize dropped near to the 1968-69 level. The growth rate for total foodgrains in this period is 1.02 per cent per annum. The conclusion is that the growth in food-grains production has been neither steady nor significant since the First Five Year Plan and the major setbacks have been due to bad weather (i.e., drought).

Of greater relevance would be an analysis of the contribution of growth in area sown and growth in productivity to growth in production. John Mellor has shown that in the first two plans (1951-61), nearly two-thirds of the growth in production was explained by increase in area cultivated.[1] That such is not the case for more recent years is substantiated by the data presented in Table 3-2. Table 3-2 shows the All-India compound growth rates for foodgrains for the periods 1949-50 to 1964-65, 1964-65 to 1970-71, and 1949-50 to 1970-71.

A quick glance at the table shows that in all foodgrains except pulses, the increase in productivity has contributed a greater percentage to the growth in production than the increase in area sown. It is important to note that growth in productivity contributed 80.7 per cent to the growth in production during the period 1964-65 to 1970-71. It is in this period that the government began to actively encourage the adoption of the new technology. The Intensive Agriculture District Programme had started in 1960 and by the beginning of the

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[1] John Mellor, The Economics of Agricultural Development (Ithaca, N.Y.: Cornell Univ. Press, 1966), p. 312, quoted in Uma Lele, "The Roles of Credit and Marketing in Agricultural Development", in Agricultural Policy in Developing Countries, ed. by N. Islam (London: Macmillan Press, 1974), p. 415.

TABLE 3-2

ALL-INDIA COMPOUND GROWTH RATES FOR FOODGRAINS

	1949-50 to 1964-65					1964-65 to 1970-71					1949-50 to 1970-71				
Crop	Prod[a]	Area	%	Yield[b]	%	Prod	Area	%	Yield	%	Prod	Area	%	Yield	%
Rice	3.48	1.33	38.0	2.13	61.3	1.44	.57	39.5	.85	59	2.92	1.18	40.4	1.72	58.9
Wheat	4.00	2.68	67.0	1.27	31.8	13.99	6.01	43	7.52	53.8	5.00	2.48	49.6	2.47	49.4
Cereals	3.24	1.29	39.8	1.93	59.6	4.12	1.44	35	2.65	64.3	3.13	1.17	37.4	1.94	62.0
Pulses	1.65	1.89	115	-.24	-15	-2.35	-2.59	-110	.24	10	.94	.91	96.8	.03	3.1
Foodgrains	3.05	1.41	46.2	1.63	53.4	3.47	.66	19	2.80	80.7	2.89	1.13	39.1	1.74	52.1
Food-grains[c]	2.90	1.20	41.4	1.63	56.2	1.22	-.33	-27	1.56	127	2.40	.98	40.8	1.51	62.9

Notes: a - Production
b - Proxy for productivity
c - Foodgrains excluding wheat

Source: P.C. Bansil, "Production Pattern and Green Revolution", Indian Journal of Agricultural Economics, XXVII (Oct-Dec 1972), p. 106.

period under consideration had begun to affect the productivity of food-grains. By 1964-65 in three districts under IADP, for instance the yield increases of the principal crop were of the order of 55 per cent (Aligarh), 64 per cent (Mandya), and 95 per cent (Ludhiana) compared to the prepackage period.[1] Finally, by 1967-68, "the yield of all important crops showed an upward trend and the increase in the average yield of paddy ranged from 6 per cent to 52 per cent and that of wheat from 40 per cent to 60 per cent in the IADP districts."[2] Even with the qualification of bad weather (inadequate rainfall), there had been a definite increase in productivity due to the employment of the new technology.

This trend (the growing importance of productivity or yield increases to growth in production) can not be seen as clearly in data for various states in India. Singh and Sirohi present statewise compound growth rates for area sown, productivity, and production for the periods 1956-57 to 1964-65 and 1965-66 to 1972-73.[3] It is crucial to note that 1965-66 and 1972-73 were both years of widespread drought; consequently, the production growth rate over this period is measured on a "trough to trough" basis. For our purposes, it is relevant to calculate the percentage of growth in production due to increase in

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[1] R.C. Dwivedi, New Strategy of Agricultural Development, (Meerut: Loyal Book Depot, 1972), p. 28.

[2] Ibid, p. 30.

[3] C.B. Singh and A.S. Sirohi, "Disparities in Agricultural Growth and Equity in India", Indian Journal of Agricultural Economics XXIX (July-Sept 1974), pp. 234-247.

productivity as opposed to increase in area sown. This was done for Andhra Pradesh and India; these figures are presented in Table 3-3.

TABLE 3-3

CONTRIBUTION OF GROWTH IN AREA AND YIELD TO GROWTH IN PRODUCTION FOR SELECTED CROPS

ALL-INDIA

	Rice		Bajra		Wheat		Maize	
	Prody	Area	Prody	Area	Prody	Area	Prody	Area
1956-577 to 1964-65	55.6	33.3	92.5	.76	58.7	24.8	55.8	38.3
1965-66 to 1972-73	85.8	13.4	110	-10	47.6	49.0	19.6	79.2

ANDHRA PRADESH

	Rice		Bajra		Wheat		Maize	
	Prody	Area	Prody	Area	Prody	Area	Prody	Area
1956-57 to 1964-65	43.3	48.8	105	51.7[a]	23.7	89.1	95.4	.66
1965-66 to 1972-73	232	209[a]	56.1	45.7	-	-	67.8	31.1

Notes: a. There seems to be some inconsistency in the data as growth in area sown plus growth in productivity does not even roughly equal growth in production for bajra in time period one and for rice in time perjod 2 at the Andhra level.

Source: Compiled from Singh and Sirohi, "Disparities in Agricultural Growth", pp. 238, 241, and 243.

On the All-India basis in paddy and bajra the share of productivity increased between the two periods. Contrary to earlier data in Table 3-2, the share of productivity for wheat declined between the

two periods.[1] Since there seems to be some inconsistency in the data at the Andhra level, I have calculated linear growth rates for the period 1964-65 to 1970-71 from indices in the Statistical Abstract of Andhra Pradesh, 1973; these growth rates are presented in Table 3-4.

TABLE 3-4

LINEAR GROWTH RATES OF PRODUCTION, AREA, AND YIELD FOR FOODGRAINS IN ANDHRA PRADESH, 1964-65 TO 1970-71

Crop	Prod	Area	%	Prody	%
Rice	-.74	.31	41.9	-1.0	135
Jowar	2.5	.49	19.6	-2.9	-116
Bajra	.69	-.52	-75.4	1.3	118
Ragi	-3.6	-2.4	66.6	-1.3	36.1
Wheat	22.7	.56	2.5	21.4	94.3
Foodgrains	-.60	.08	-13.3	-.67	111

Source: Compiled from Government of Andhra Pradesh, Statistical Abstract of Andhra Pradesh, 1973 (Hyderabad: Bureau of Economics and Statistics, 1973), pp. 75, 77, and 79.

A cursory glance at the the table reveals that Andhra agriculture has been fairly stagnant. There has been a decline in production in almost all crops with decrease in productivity being the major contributor to this trend in all crops except ragi.

A conclusion of this analysis is that change in productivity has been the crucial variable in change in production rather than

[1] This statement is not a true interpretation of the data because the increase in production in wheat was due to a great increase in area cultivated. Consequently, productivity may not have actually declined but was offset by the increase in area cultivated.

change in area sown, yet productivity change has not seemed to have had a positive effect on growth in production. The whole discussion on whether there has been a "green revolution" may be worthwhile to mention at this point. The crucial point as mentioned by T.N. Srinivasan is that, as paraphrased by Dantwala, "the trend rates of growth in production as well as productivity before and after the 'Green Revolution' (1964-65) do not differ materially, except for wheat."[1] Griffin, extending Srinivasan's data, comes to a similar conclusion. He concludes that though there may have been rapid expansion in some areas of the world, on the whole, there has been no widespread green revolution.[2] One must keep in mind, however, as Lester Brown points out, that without the new cereal technology, growth rates in foodgrain production may have been even lower.[3] Though there may not have been the revolutionary increase in agricultural output as forecasted by the excited proponents of the "green revolution", one can not deny that the new technology has had an impact on agriculture on the input side, particularly in those areas of India where the new seeds have been adopted.

The Agricultural Input Sector

Dantwala would argue that there has been an "input revolution" in Indian agriculture (i.e., increased use of modern inputs).[4]

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[1] Dantwala, "Preface", p. 35

[2] Keith Griffin, The Political Economy of Agrarian Change, p. 10.

[3] Lester Brown, By Bread Alone (New York: Praeger, 1974), p. 145.

[4] Dantwala, "Preface", p. 40.

To encourage such a revolution, the five year plans beginning with the Third Five Year Plan (1962-63 to 1967-68), began to place greater emphasis on such inputs as fertilisers, high-yielding variety seed, and irrigation. What progress has there been in the consumption of these inputs to substantiate the claim of an "input revolution"?

The input that may be considered the center of the new technology is the high-yielding variety seed. Crucial to the diffusion of the new technology is the extent of acreage under the high-yielding varieties. The increase in the area covered under the High-Yielding Variety Programme has been satisfactory. In the Fourth Five Year Plan, the increase was to be from a base-level of 8.55 million hectares to a target of 24.1 million hectares. Table 3-5 shows the actual versus the targetted acreage.

TABLE 3-5

PROGRESS OF AREA UNDER HIGH YIELDING VARIETIES, INDIA
(million hectares)

Crop	1968-69	Fourth Plan Target	1969-70	1970-71	1971-72	1972-73 Estimated	Likely 1973-74
Rice	2.60	10.10	4.34	5.59	7.41	8.64	9.50
Wheat	4.80	7.70	4.92	6.48	7.86	10.24	10.80
Maize	.40	1.20	.42	.46	.44	.50	.60
Jowar	.70	3.20	.56	.80	.69	.90	1.10
Bajra	.70	2.80	1.16	2.05	1.77	2.25	3.00
Total	9.20	25.00	11.40	15.38	18.17	22.53	25.00

Source: Draft, Fifth Five Year Plan, 1974-79, Vol II, p. 1

Except for maize and jowar, the area has exceeded or closely approached the plan target. Though progress has been satisfactory,

the impact of using more acreage in high-yielding varieties on production has not been proportionate to the amount of land under this programme. This has been due to problems with the varieties themselves and the lack of availability of other related inputs.

Parthasarathy presents data on the progress of HYV in Andhra Pradesh.[1] His findings are that there was significant progress in the rabi (winter) season compared to the kharif (monsoon) season. For example, in kharif 1970-71, the percentage of area under HYV paddy compared to the total area under paddy was 9.67 whereas in rabi 1969-70, the percentage was 35.44. This is in keeping with a general trend nationwide.[2] Under the crop loan system, primary credit co-operative societies have entered into the distribution of these seeds.

The benefits of sowing HYV seeds depends greatly on the correct employment of fertilisers. The performance of fertiliser consumption is shown in Table 3-6. Though there has been a steady increase in fertiliser consumption, the achievement has been below the expectations of government planners. For example, the target for

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[1] G. Parthasarathy and D.S. Prasad, "Season-Wise Progress of High-Yielding Varieties in Andhra Pradesh: Role of Economic Variables", Economic and Political Weekly, VI, 39 (1971), pp. A-117-122.

[2] [2] Factors contributing to this trend are environment conditions are better in rabi season (i.e., more assured water supply) and product prices are lower in kharif season. See Randolph Barker and Mahar Mangahas, "Environmental and Other Factors Influencing the Performance of New High Yielding Varieties of Wheat and Rice in Asia", Agricultural Development in Developing Countries, pp. 225-236; and Parthasarathy and Prasad, "Season-Wise Progress", p. A-122 respectively.

TABLE 3-6

ALL-INDIA CONSUMPTION OF FERTILISERS

	Fertiliser			
	Nitrogen	Phosphate	Potassium	Total
	lakh tonnes[a]			
1966-67	2.4	2.5	1.1	6.0
1967-68	10.4	4.4	2.0	16.8
1968-69	12.08	3.82	1.70	17.60
1969-70	13.56	4.18	2.09	19.83
1970-71	14.79	5.41	2.36	22.56
1971-72	12.98	5.58	3.00	26.56
1972-73	18.40	5.81	3.48	27.69
1973-74	19.70	6.20	4.10	30.00

Notes: a - lakh tonne is 100,000 metric tons.

Source: Draft, Fifth Five Year Plan, 1974-79, Vol. II, p. 4.

total fertiliser consumption in the Fourth Plan was 55 lakh tonnes[1] whereas the actual consumption is anticipated to be 30 lakh tonnes. This discrepancy between targetted and actual consumption figures is due to many problems. The more serious fertiliser problems have been shortages in production, distributional lags, and the fact that "the application of fertilizer has been around half of recommended dosage in terms of nitrogenous and about 1/3rd in terms of phosphatic and potassic fertilizers."[2] The Fifth Five Year Plan envisages an expansion of distributional facilities from the port to the village. The co-operative society is seen as playing a crucial role in encouraging this expansion of fertiliser consumption by being the primary retail

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[1] Government of India, Planning Commission, Fourth Five Year Plan, 1969-74 (New Delhi: 1969), p. 121.

[2] Draft, Fifth Five Year Plan, 1974-79, Vol. II, p. 4.

depot for fertilisers.

Another important and related input to the success of high-yielding varieties is irrigation. Although most of India is still dry-land, progress in irrigation has been relatively successful. Table 3-7 shows the irrigation potential and the development up to 1970-71.

TABLE 3-7

DEVELOPMENT OF IRRIGATION
(000 hectares)

	Andhra Pradesh	All India
Total cropped area in 1968-69	12,456	159,160
Ultimate irrigation potential		
major & medium	6,475	45,557
minor	3,846	36,440
total	10,321	81,997
Development up to 1970-71		
major & medium	2,539	18,877
minor	1,690	20,092
total	4,229	38,968
Development on completion of all major and medium project under construction	4,995	49,271

Source: "Green Revolution or Grey?", Eastern Economist, Annual Number, 1973, p. 1394.

Andhra Pradesh has realised 41.97 per cent of its potential (i.e., 4,229,000 hectares developed in relation to 10,321,000 hectares potential), whereas, at the national level, 47.52 per cent of the potential had been realised (i.e., 38,969,000 hectares developed in relation to 81,997,000 hectares potential). Table 3-8 shows the

sources of irrigation for the years 1967-68 to 1971-72 in Andhra Pradesh.

TABLE 3-8

LAND IRRIGATED BY SOURCES OF IRRIGATION
(in hectares)

Sources of Irrigation	1967-68	1968-69	1969-70	1970-71	1971-72
Canals	13,05,866	13,95,063	14,88,169	15,78,825	15,20,888
Tanks	12,20,416	7,73,368	10,70,815	11,12,171	8,12,760
Tube Wells	37,312	55,787	62,146	65,723	75,521
Other Wells	4,20,245	4,10,989	4,40,381	4,43,599	4,95,075
Other Sources	1,05,505	82,303	1,27,935	1,12,699	96,324
Total	30,89,344	27,17,510	31,89,446	33,13,017	29,97,568

Source:; Statistical Abstract of Andhra Pradesh, 1973, p. 29.

In most statistical tables, major irrigation is defined as irrigation by canals. This source of irrigation has contributed on the average 47.6 per cent of total irrigation in the period 1967-1972. Minor irrigation is defined as tanks, wells (tube and other wells), and other sources (culverts and channels). On the average, these sources have contributed over half of total irrigation. Primary credit co-operative societies give medium-term loans for the purposes of constructing channels and culverts and installing diesel engines and electric motors.

The conclusion of this analysis is that "off-farm" inputs have been increasing in importance; associated with this, change in productivity has become the crucial variable for changes in production. Consumption of these inputs has been increasing but whether the performance has been sufficiently impressive to be labelled as an

"Input revolution" is debatable. The government plans have recognized the importance of primary credit co-operative societies not only in the distribution of these inputs but in meeting the additional credit requirements which are a result of the use of these inputs.[1]

Role of Primary Credit Co-operative Societies in the Distribution of Modern Inputs

That co-operatives are increasing in importance can be discerned by various factors, such as increased outlays in the Five Year Plans as well as growth in the number of co-operatives, the number of villages covered, and the number of loans disbursed. The first indicator to be examined is the amount of outlay allocated to the co-operative movement in the five Five Year Plans. Table 3-9 presents the outlay on agricultural and allied sectors and on the co-operative sector at the national and state level.

The relative or percentage outlay on co-operation increased significantly during the Second Plan and declined slightly in the Third Plan. One possible explanation is that the plans to introduce the IADP (which was begun in 1960) were being cemented in the Second Plan and so outlay on co-operation was increased to strengthen the co-operatives. Though the targetted expenditure share for the Fourth Five Year Plan was 6.8 per cent, the actual expenditure on co-operation was 254 crores compared to an expenditure of 3466 crores on agricultural and allied sectors--a relative share of 7.4 per cent. Co-operation at the national level has been of consistent importance

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[1] Fourth Five Year Plan, 1969-74, p. 158.

in the plans. For Andhra Pradesh, data previous to the Fourth Plan were not available. One should note that the outlay in the Fifth Five Year Plan decreased slightly.

TABLE 3-9

OUTLAY[a] ON AGRICULTURE AND CO-OPERATION IN FIVE YEAR PLANS AT ALL-INDIA AND ANDHRA PRADESH LEVELS

Plan	Outlay on agriculture and allied sectors	Outlay on co-operation	Percentage share 3/2
	(Rs. crores[b])		
	ALL-INDIA		
1st Five Year Plan	290.0	5.0	1.7
2nd Five Year Plan	530.0	38.8	7.3
3rd Five Year Plan	1068.0	71.1	6.7
4th Five Year Plan	2217.5	151.4	6.8
5th Five Year Plan	4730.0	423.0	8.9
	ANDHRA PRADESH		
4th Five Year Plan	65.48	11.9	18.7
5th Five Year Plan	159.91	25.0	15.6

Notes: a - outlay is defined as expected expenditure, not actual expenditure.
b - crore is defined as ten million rupees.

Sources: Third Five Year Plan, 1963-68; Fourth Five Year Plan, 1969-74; Draft, Fifth Five Year Plan, 1974-70, and Government of Andhra Pradesh, Planning and Co-operation Department, Fifth Five Year Plan, 1974-79, Draft Outline (Hyderabad: 1975).

The general progress of the co-operative movement is presented in Table 3-10. The number of societies has declined steadily from a peak of 212,000 in 1960-61, primarily due to the need for rationalization and enhanced viability. Progress in the number of villages covered

TABLE 3-10

PROGRESS OF THE CO-OPERATIVE MOVEMENT, SELECTED INDICATORS, INDIA

Unit	1951-52	1960-61	1965-66	1966-67	1967-68	1971-72	1972-73
No of societies (lakhs)	1.08	2.12	1.92	1.79	1.75	1.57	1.55
No of villages covered (lakhs)	-	4.23	5.03	5.07	-	5.42	5.43
Membership (lakhs)	48	170	261	267	283	320	335
No of dormant societies (thousands)	-	41	24	25	-	21	19
Dormant societies (per cent)	-	19.3	12.3	14.0	-	13.4	12.3
Borrowing membership (per cent)	-	52.6	41.6	39.7	-	35.6	38.9
Paid-up share capital (Rs. crores)	9	58	115	129	144	224.8	247.6
government	-	6	10	11	12	9.3	10.8
Owned funds (Rs. crores)	18	76	149	165	-	292.2	322.5
Deposits (Rs. crores)	4	15	34	39	49	74.8	83.3
Loans issued							
short-term (Rs. crores)	-	183	305	325	359	540.9	612.7
medium term (Rs. crores)	-	20	37	40	46	73.6	163.3
total (Rs. crores)	24	203	342	365	405	614.5	776.0
Loans outstanding (Rs. crores)	34	218	427	477	520	858.3	978.7
Overdues (Rs. crores)	9	44	125	160	157	376.7	368.2
Per cent of overdues to loans outstanding (per cent)	25.3	20.3	29.4	33.5	30.2	43.9	37.6

Source: Compiled from Report of the All-India Rural Credit Review Committee (Bombay: Reserve Banks of India, 1969), Table 9, p. 138; and Reserve Bank of India, Statistical Statements Relating to the Co-operative Movement in India, 1972-73, Part I: Credit Societies (Bombay: Mahava Das, 1973), pp. 93-103.

has not been very significant with 86 per cent of the villages being covered by the co-operatives in 1972-73 compared to a figure of 85 per cent in 1969.[1] The rise in membership has been quite significant, but the percentage of borrowing members has actually declined from the peak of 52.6 per cent in 1960-61, to 38.9 per cent in 1972-73. Related to this problem is that, though the absolute figures on loans extended show a significant increase (Rs. 24 crores in 1951-2 to 776 in 1972-3), co-operatives only met 30 to 35 per cent of the credit requirements of the farmer.[2] The Fifth Five Year Plan envisages an increase in this share to 40 per cent by the end of the plan in 1979. Despite increased emphasis on the importance of the co-operatives in the field of agricultural credit, the performance of the co-operatives in this area seems to be substandard. Another area in which the performance of the co-operatives has been unsatisfactory is the percentage of overdues to loans outstanding; in 1951-2 it was 9 out of 34 while in 1972-73 it is 368.2 out of 978.7 crore rupees. Though there has been a drop from 1971-72 to 1972-73, the overdues percentage of 37.6 is still quite high if co-operatives want to achieve any reasonable standard of internal efficiency. An encouraging point is that the absolute levels of share capital and deposits have increased significantly; moreover, government's share capital has stayed fairly constant (i.e., at Rs. 6 crores in 1952-3 versus 10.8 in 1972-3).

Of particular relevance to this study is an examination of the

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[1] Dantwala, "Preface", p. 31.

[2] Ibid, p. 31.

role of the primary credit co-operative societies in the distribution of various modern inputs. In Table 3-11 data are presented for the following four inputs: fertilisers, seeds, agricultural machinery and implements, and pesticides and insecticides.

TABLE 3-11

VALUE OF INPUTS DISTRIBUTED BY CO-OPERATIVE SOCIETIES

Item	1960-61	1967-68	1968-69	1971-72	1973-74[a]
			(Lakh Rupees)		
Fertiliser	28	138	200	300	350
Seeds	3	26	23.48	45	60
Agricultural implements and machinery	-	6.82	6.63	12	15
Pesticides and insecticides	-	16.28	22.13	20	25

Notes: a - Anticipated

Source: Compiled form Draft, Fifth Five Year Plan, 1974-79, Vol. II, p. 97; and Dwivedi, New Strategy, p. 252.

Distribution of these inputs by co-operatives has been steadily increasing. The share of co-operatives in the total fertilizer trade in India has been fairly steady at 60 per cent.[1] A more detailed table, Table 3-12, for the nation and Andhra Pradesh also includes the loans given for irrigation purposes. Loans given for irrigation forms 17.4 per cent of the medium term loans extended in Andhra and 15.2 per cent in India.[2] For minor irrigation during the Fourth Plan, co-operatives in Andhra Pradesh were supposed to provide 38.7 per cent of the

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[1] Draft, Fifth Five Year Plan, 1974-79, Vol. II, p. 97.

[2] Reserve Bank of India, Statistical Statements, Part I, p. 103.

TABLE 3-12

VALUE OF INPUTS DISTRIBUTED BY
PRIMARY CO-OPERATIVE SOCIETIES IN 1972-73
(thousands of rupees)

Seed	Andhra Pradesh	India
Seed	6,15	8,54,80
Fertiliser	1,43,61	150,13,31
Pesticides	8,30	6,58,26
Implements	3,93	1,23,83
Others	18,83	9,88,79
Sinking of wells and repairs	24,60	11,44,30
Purchase of machinery (pumpsets for irrigation)	25,25	13,50,31

Source: Reserve Bank of India, Statistical Statements Relating to the Co-operative Movement in India, 1972-73, Part I, pp. 99 and 103.

expenditure through loans. In the Fifth Plan, the figure dropped to 28.7 per cent.[1] Nevertheless, co-operatives play a substantial role in the financing of irrigation projects.

The fact that co-operatives have entered into the distribution of modern inputs is undeniable. The crucial question is how significant such progress has been. A clear cut answer can not be derived because the data are inadequate. The one input in which the primary co-operative society has a significant share with respect to distribution is fertiliser. Even with incomplete data, however, one might postulate that the share of the credit co-operative society in the distribution of the "off-farm inputs" (except for fertiliser) has not been significant. This insignificant progress may partly be explained by problems in the

[1] Fifth Five Year Plan 1974-79, Draft Outline, p. 266.

structure of the co-operatives themselves, problems in the structure of the rural economy leading to an unwillingness to utilise the co-operatives, and problems in the production of these modern inputs.

CHAPTER IV

AN ANALYSIS OF THE PERFORMANCE OF THE PALMAKUL CO-OPERATIVE RURAL BANK

The main purpose of this chapter will be to evaluate the performance of the Palmakul Co-operative Rural Bank. The discussion will begin with a description of Hyderabad District, in which the Palmakul co-operative society is located, and its agricultural economy. In addition, the characteristics of the villages served by the Rural Bank will be delineated. The performance of the co-operative society will be evaluated on the basis of certain efficiency and equity criteria. Finally, an attempt will be made to delineate the power structure of the co-operative society and to define its relation to the existing power structure in the area. Such an analysis will hopefully shed light on the problems facing co-operative societies.

The Agricultural Economy of Hyderabad District

Hyderabad District is located in the western portion of the state of Andhra Pradesh (see Figure 1-1). The district is unique as it is dominated by the twin cities of Hyderabad-Secunderabad. The urban character of the district can be discerned from the fact that with the smallest area (7,707 sq. km.) of all the districts in Andhra, it has the highest number of towns (17), the highest population density (362 people per sq. km.), and the highest percentage of population in an urban area (63.8 per cent).[1] Therefore, any analysis of this district must be aware of the essential urban character of the area and of

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[1] Compiled from Statistical Abstract of Andhra Pradesh, 1973 Table 1.3, p. 8.

the effects of the metropolitan area on the rural hinterland.

Geographically, the district is situated at the eastern end of the Deccan Plateau.[1] Though in this area there are no mountains, the plateau slopes are not conducive to cultivation due to poor soils and a highly variable rainfall. In assessing the agricultural economy, therefore, two important variables to consider are soil and rainfall. Much of Southern India, including Hyderabad District, has red sand or gravelly soils which are deficient in organic matter and plant nutrients. Since these soils are of such poor quality, fallowing is required at least twice every three years. Furthermore, these soils are best suited for the cultivation of inferior cereals such as sorghum and millets.

The other variable, rainfall, is also not very favourable in this district. The normal rainfall in this district is only 778.5 millimetres (about 30 inches) compared to 890.3 millimetres for the state. In Hyderabad District, there is a high variability in rainfall as seen by the fact that there were 1010.3 millimetres of rain in 1970-71 whereas in 1971-72 there were only 586.3 millimetres.[2]

A factor that may explain the variability in rainfall is the dependence in most of India on the south-west summer monsoon for a large portion of the annual rainfall (in Hyderabad District, the south-west monsoon provides 70.7 per cent of the annual rainfall). Conse-

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[1]The discussion in this paragraph is based on material presented in Jasbir Singh, An Agricultural Atlas of India: A Geographical Analysis (Kurukshetra: Vishal Publications, 1974).

[2]Statistical Abstract of Andhra Pradesh, 1973, p. 44.

quently, when the south-west monsoon is erratic, the consequences on agriculture in this district may be disastrous.[1]

Compounding this problem is the lack of irrigation facilities to provide an adequate and assured water supply. This problem is crucial in view of the fact that only 13 per cent of the gross sown area in Hyderabad District for the year 1971-72 was irrigated. In other words, 87 per cent of the total cropped area was completely dependent on rainfall. Furthermore, the irrigation facilities available were mostly of the type that depended directly or indirectly on rainfall as shown in Table 4-1. This table presents the sources of irrigation for the year 1971-72 for Hyderabad District and Andhra Pradesh.

TABLE 4-1

SOURCES OF IRRIGATION FOR 1971-72
(per cent)

Type	Hyderabad	Andhra Pradesh
Canal irrigation	7.3	50.7
Tanks	26.9	27.1
Tube-wells	neg	2.4
Other wells	61.5	16.5
Other sources	4.3	3.2

Source: Compiled from Statistical Abstract of Andhra Pradesh, 1973, p. 93.

[1] A major problem is that since a large portion of the rain comes in such a short span, much rainfall is wasted as run-off. Moreover, since the distribution of rainfall is uneven over time, there is a great likelihood that water will not be available when needed. This is especially crucial as agricultural functions are dependent upon a reliable source of water.

Canals, tubewells, and other sources are not very important irrigation sources in Hyderabad District whereas in the state, canals are very definitely an important source. The major source of irrigation in Hyderabad District is "other wells" (61.5 per cent) which are heavily dependent upon monsoon rainfall for recharge.

In short, Hyderabad District faces the problems of poor soil, highly variable (in absolute terms) rainfall, and inadequate irrigation facilities. The agricultural economy of such a district can not be expected to be very exceptional except for whatever positive influence the urban area has on the agricultural economy of the hinterland.

Many variables can be considered when evaluating the agricultural economy of an area. For our purposes, the crucial variable to consider is the cropping pattern. The cropping pattern for Hyderabad District and Andhra Pradesh for 1971-72 is depicted in Table 4-2.

TABLE 4-2

PERCENTAGE OF TOTAL AREA CROPPED DEVOTED TO PRINCIPAL CROPS, 1971-72
(per cent)

Crop	Hyderabad	State
Rice	10.5	24.0
Jowar	33.3	20.0
Bajra	2.7	4.1
Wheat	.95	.16
Maize	2.1	2.14
Ragi	2.15	2.15
Total Foodgrains	56.3	58.1
Pulses	13.1	10.6
Vegetables	4.7	2.8

Source: Compiled from Statistical Abstract of Andhra Pradesh, 1973, Tables 4.9, 4.10, and 4.12.

The percentage of cropped area devoted to foodgrains for Hyderabad District is 56.3 per cent which is essentially the same as the state figure (58.1 per cent). Jowar (sorghum) is the most important crop for Hyderabad District as seen by the fact that the area devoted to jowar as percentage of the total cropped area is 33.3 per cent compared to the state figure of 20 per cent. The area devoted to rice (10.5 per cent) is significantly less that the state average (24 per cent) due to the poor soil and inadequate irrigation facilities of this district.

For vegetables (4.7 per cent), wheat (.95 per cent), and pulses (13.1 per cent), the area under cultivation is relatively higher in Hyderabad District than in the state. An explanation why pulses are of greater importance in the district than in the state is that the soil is better suited for this crop.[1] The percentage of area devoted to wheat is surprisingly high and a possible explanation is that farmers who are acquiring pumpsets are changing their cropping pattern with bias towards wheat in this area because of the potential profitability of high yielding varieties of this crop.[2] Finally, the reason why the area devoted to vegetables is higher in Hyderabad District than the State is the influence of the Hyderabad metropolitan area.[3]

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[1] Singh, Agricultural Atlas, p. 36.

[2] In my research I found that farmers who acquired pumpsets changed cropping patterns with an increase in the area under wheat. See Appendix B for greater detail.

[3] See S. Manzoor Alam, Metropolitan Hyderabad and Its Regions: A Strategy for Development (London: Asia Publishing House, 1972) for a more detailed discussion.

In addition to the cropping pattern, it is also important to study the yields of the crops in the district to make any judgement on the agricultural economy of the area. In 1971-72, the yields in nearly all crops in the district were among the lowest in the state. Even in Jowar, the most important crop in this district, the district yield (354 kg. per hectare) was the fourth lowest in the state.[1] Overall, Hyderabad District can not be considered as one of the more productive agricultural areas in Andhra.

This point of view is further substantiated when one looks at other variables such as intensity of cropping, intensity of irrigation, seeds used, and the availability of modern farm implements. Intensity of cropping is well below the state level (an index number of 103 compared to 112); similarly, the proportion of net sown area which is irrigated is 11.96 per cent for the district compared to the state average of 20 per cent. Cultivation in this area is largely dependent on traditional implements. The high yielding variety of paddy used in this district is one of the lowest yielding. By all standards, Hyderabad District is a relatively underdeveloped area.

To conclude, our analysis has shown that Hyderabad District, though influenced by the metropolitan area, is not highly developed in terms of agricultural productiveness due to the difficulties caused by poor soil, climate, and the lack of adequate irrigation facilities. Because of the urban influence, infrastructure such as roads and power may be well developed but from our analysis, we can conclude that the agricultural economy of this district is lagging behind that of most

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[1] Statistical Abstract of Andhra Pradesh, 1973, p. 82.

other districts in the state.

Description of the Villages Served by the Palmakul Society

The Palmakul Co-operative Rural Bank is situated in Palmakul and covers eleven villages within a radius of five miles. The actual distance of Palmakul from Hyderabad is 20 miles or 32 kilometres; the journey from Palmakul to Hyderabad by bus takes just over one hour. Palmakul is situated on the Hyderabad-Kurnool highway and, therefore, there is frequent bus service to the village. There is also train service but the most frequently used methods of transportation are bus and bullock cart. Marketing facilities are available at Shadnagar (16 km.), Shamshabad (18 km.) or Hyderabad (32 km.). Palmakul also has a weekly market. It is important to note that Shadnagar has such important facilities as a hospital, dispensary, health centre, and high school. Palmakul and its surrounding villages have the benefit of a variety of services at not too great a distance.

All the villages in this study are in the Hyderabad West taluqa.[1] The soil and climate of the eleven villages are not fundamentally different from that of Hyderabad District. On the other hand, the sources of irrigation in the villages vary somewhat from that of the district. Table 4-3 presents irrigation and other agricultural particulars of the eleven villages. Tanks are an important source of irrigation in Palmakul (73.3 per cent) and Madhanpally (59.5 per cent). Wells have the greatest importance in Timmapur (78.9 per cent), Mallapur (69.0 per cent), Jukal (72.7 per cent), and Nanajipur (79.2

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[1] A taluqa is a subdivision of the district and has traditionally been a revenue collecting unit.

TABLE 4-3

PARTICULARS OF THE VILLAGES SERVED BY
THE PALMAKUL CO-OPERATIVE RURAL BANK

	Total area (acres)	Total irrigated area (acres)	% of area under tanks (%)	% of area under oil engines ((%)	% of area under wells (%)	No. of agricultural families
Palmakul	2501.14	578.55	73.3	16.2	10.4	293
Madhanpally	1534.08	126.00	59.5	11.9	28.6	185
Muchintal	1300.00	84.00	50.0	-	50.0	154
Pedda Thupra	1726.00	164.01	43.3	14.2	42.7	300
Timmapur	1484.11	190.0	-	21.1	78.9	189
Kothur	2315.29	184.00	32.6	19.0	48.4	176
Teegapur	1131.18	73.19	41.2	24.6	34.2	96
Mallapur	941.18	145.00	-	31.0	69.0	120
Gudur	1553.00	103.00	35.0	21.4	43.7	139
Jukal	2000.00	165.00	9.1	18.2	72.7	200
Nanajipur	1200.00	53.00	-	20.8	79.2	135

Source: Palmakul Co-operative Rural Bank.

per cent). Oil engines contribute around one-fifth of total irrigation in almost all villages, except in Muchintal where there are no oil engines. These figures are basically consistent with the figures shown for Hyderabad District earlier. The one surprising fact is that oil engines are of great importance in this area but do not show up in the data for the district in 1971-72. A reason is that most of the loans for oil engines were issued in 1970-71 and 1971-72 in the Palmakul area. It would appear that the society, through its actions, has affected the importance of the sources of irrigation in this area.

Details on the cropping pattern were not available for these villages. Table 4-4, which is based on the details of loans given to

interviewed members, shows the percentage of cropped area devoted to principal crops. This table is a close approximation of the cropping pattern.

TABLE 4-4

CROPPING PATTERN OF THE VILLAGES[a]
(per cent)

Crop	Percentage
Rice	17.6
Wheat	7.7
Jowar	33.3
Bajra	3.2
Pulses	3.1
Groundnut	4.5
Castor	3.1
Safflowers	2.7
Vegetables	5.0
Sesame	.9
Maize	.4
Dhania	1.3
Chilies	2.2

Notes: a - total cropped area was 220.66 acres.

Source: Palmakul Co-operative Rural Bank.

The percentage of paddy is 17.6 per cent which is higher than the district average of 10.5 per cent. For wheat, the district figure of .95 per cent is much lower than the figure of 7.7 per cent for the villages. The figures for vegetables (5.0 per cent) and bajra (3.2 per cent) are also higher than the district figures of 4.7 per cent and 2.7 per cent respectively. For jowar, the figure (33.3 per cent) is the same for the villages and the district. The area devoted to

pulses and oil seeds is significantly lower in the villages than in the district. Consequently, the cropping pattern of the villages based on my limited data generally fits the broad pattern of the district in 1971-72.

To gather information on the costs of production, yearly income, and yearly expenditure thirty-one farmers in the Palmakul area were interviewed.[1] Table 4-5 shows the costs of production per acre for the principal crops for three classifications of farmers by size of holding. The costs of production for paddy and ragi vary significantly between small farmers and large farmers. Table 4-6 shows the yearly expenditure and income for the three groups in 1974-75. For all of the small farmers their expenditure is above their yearly income. For the medium farmers the situation is not much different, with only one farmer definitely being able to meet his expenditures. The situation for the large farmer is slightly better, with at least three farmers being able to meet their expenditures.

TABLE 4-5

COSTS OF PRODUCTION FOR PRINCIPAL CROPS
(rupees per acre)

Size of holding/crop	Paddy	Jowar	Ragi	Chilies	Castor
Below 3 acres	750	200	500		
3 to 8 acres	750	200	500		
8 and above	500	150	200	600	500

Source; Farmers interviewed.

[1] More detailed tables are presented in Appendix B.

TABLE 4-6

YEARLY INCOME AND EXPENDITURE[a]
(rupees)

	Income							
	0-1000	1000-2000	2000-3000	3000-4000	4000-5000	5000-6000	6000-7000	7000 and above
Below 3 acres		1	6	1				
3 to 8 acres		1	3	2	3		1	16000
8 acres and above		2[b]	1	2	33		1	30000 48000

	Expenditure						
	0-2000	2000-4000	4000-6000	6000-8000	8000-10,000	10,000-12,000	12,000 and above
Below 3 acres		1	3	2	2		
3 to 8 acres		7	3				
8 acres and above		6		3	2		

Notes: a - there are difficulties in representing these figures as it is highly possible that a person with an income of Rs. 3000 may only have an expenditure of Rs. 2000. In Appendix B, more detailed tables are given to overcome this problem.

b - such a low income may be due to the fact that the farmer has no wet land or some natural catastrophes, such as floods, has occurred.

Source: Farmers interviewed.

Palmakul and the surrounding ten villages essentially have the general agro-economic characteristics of Hyderabad District. None of these villages are highly developed and the agricultural economy of these villages is essentially the same as that of the district. As a consequence, the co-operative society has had to operate in an economy which depends mostly on an unassured water supply and which grows mostly low-yielding sorghum and coarse millets. Its members are, on the whole, farmers who can not meet their expenditures with the income they receive from the land. A result of operating in a relatively low productivity area is that the co-operative society faces many difficulties in its functioning.

Evaluation of the Performance of the Palmakul Co-operative Rural Bank

The Palmakul Co-operative Rural Bank was registered in 1956 with the Registrar of Co-operative Societies of Andhra Pradesh. Its main purpose was to promote the economic interests of the members in accordance with co-operative principles. Other major purposes were to raise funds by receiving fixed deposits, subscribing share capital, or borrowing from other sources (mostly from the Central Co-operative Bank); to lend to its members at a low rate of interest to fulfill the credit needs of agricultural production; to grant petty loans on the security of gold and other ornaments; to act as a commission agent for the Central Co-operative Bank (CCB) and receive savings deposits; to act as a commission agent for the associated marketing society; and to act as a supply agency of inputs such as fertilisers and of consumer goods such as cloth, sugar, kerosene, and oil. All of the purposes are of importance even today except the giving of petty loans on the

security of ornaments, a practice which was discontinued in the early 1970's. The society has not been a very active agent of the associated co-operative marketing society since there are not many commercial/cash crops grown in this area. With the advent of the crop loan system, the role of the co-operative in the distribution of fertilisers has increased sharply. The only type of loan that the society gives for seasonal agricultural operations is the crop loan on the security of land or else a surety loan of Rs. 500 for those without mortgagable land. Medium term loans are given for the purpose of sinking a well, buying a pumpset, or buying a bullock.

There are several bylaws which regulate the functioning of the society. One share has a value of Rs. 25; anyone can become a member by paying the full amount and an entry fee of Rs. 1 or by paying Rs. 10 and the entry fee and subsequently paying the balance so the value of Rs. 25 is reached. The maximum share capital that can be held by a member is one-tenth of the share capital of the society. Funds of the society can be raised by: share capital; entrance and transfer fees; deposits from members and non-members; share capital from Government;[1] share capital from the CCB; borrowings from the Government and the CCB or any other commercial bank; donations; and subsidies and grants. Fixed deposits--for amounts not less than Rs. 5 and for time periods of at least 6 months-- can be received. The maximum credit limit is set at Rs. 10,000 where there are irrigation facilities and Rs. 6,000 in dry areas. Other bylaws deal with the reasons for cessation of membership, the powers of the Managing

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[1]Government here refers to the state apex bank.

committee (to be discussed later), the allocation of profits, the types of loans to be disbursed, and the role of the society as a Commission agent.

At the time of registration in 1956, the membership of the Palmakul society was 194, its share capital was Rs. 2,075, and the amount of loans disbursed in the following year was Rs. 41,460. Table 4-7 shows the growth of membership, share capital, and crop loans disbursed from 1964-65 to 1974-75. The membership had reached

TABLE 4-7

GROWTH STATISTICS OF THE PALMAKUL CO-OPERATIVE RURAL BANK

Year	Members	Share Capital (Rs.)	Sc[a]/member (Rs.)	Crop Loans[b] (Rs.)
1964-65	710	29,315	41.3	
1965-66	726	31,056	42.8	
1966-67	721	31,398	43.5	
1967-68	695	33,013	47.5	208,686
1968-69	688	39,617	57.6	NA
1969-70	797	64,573	81.0	NA
1970-71	793	85,704	108.1	442,576
1971-72	861	104,229	121.1	536,682
1972-73	930	122,073	131.3	340,300
1973-74	932	119,634	128.4	17,918[c]
1974-75	938	141,718	151.1	524,072

Notes: a - Sc stands for share capital.
b - figures for crop loans disbursed were available only from 1967-68 when this program was first instituted.
c - this low figure can be explained by the fact that 1973-74 was a drought year.

Source: Palmakul Co-operative Rural Bank.

710 by 1964-65 and then steadily increased (with a slight drop in the years 1967-68 and 1968-69) to 938 in 1974-75. The total number of agricultural families in the Palmakul area is 1,987 (refer to Table 4-3) and, therefore, approximately 47 per cent of the agricultural families are covered by the society. Nearly 77 per cent of the members are borrowing members. Share capital has grown five fold from Rs. 29,315 in 1964-65 to 141,718 in 1974-75. One can also see that the share capital per member has nearly quadrupled from Rs. 41.3 in 1964-65 to Rs. 151.1 in 1974-75. The value of crop loans disbursed has risen from Rs. 208,686 in 1967-68 to Rs. 524,072 in 1974-75.

That the volume of transactions has increased and the financial position of the society become stronger is undeniable. The crucial question, however, is to evaluate the performance of the society. The evaluation will be based on efficiency criteria, equity criteria, and an assessment of the power structure of the society.

Efficiency[1]

The criteria of efficiency for most lending institutions are usually the strength of the financial resource base, the per

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[1]The following discussion on efficiency is a narrow analysis of the co-operative society based on internal performance criteria. The more significant question is the impact of the allocation of credit by the primary co-operative on increased agricultural production and efficient use of agricultural resources. Since sufficient data was not available, such an analysis could not be undertaken. A side issue is examined in Appendix B--the effect of medium-term loans for the purpose of irrigation (spl MTO) on the cropping pattern of the recipient farmers. Though this analysis does not answer the broader question, it does give some indication of the effect of loans by the co-operative society on farming methods.

centage of internal financing in the operations of the agency, and the recovery rate of loans issued [i.e., percentage of loans overdue to loans outstanding]. Usually the financial resource base is defined as the working capital of a co-operative society. Working capital is usually defined as owned funds and borrowed funds. Owned funds consist of paid up share capital and reserve funds; borrowed funds are defined as deposits mobilised from members and non-members and other borrowings, mostly from the Government and the CCB. Table 4-8 shows the financial particulars of the Palmakul Co-operative Rural Bank. Working capital has increased from Rs. 364,470.26 in 1965-66 to Rs. 968,338.09 in 1974-75 with a peak of Rs. 1,467,400 in 1971-73. Other borrowings (CCB) increased from Rs. 251,072.01 in 1965-66 to Rs. 546,078 in 1974-75 with a peak of Rs. 1,106,666 in 1971-72. Deposits nearly tripled increasing from Rs. 52,967.25 in 1965-66 to Rs. 156,523.09 in 1974-75 with a peak of Rs. 185,404.87 in 1972-73. Share capital quadrupled, increasing from Rs. 59,856 in 1965-66 to Rs. 262,317 in 1974-75.[1] It is interesting to note that reserves rose from Rs. 575 in 1965-66 to Rs. 3,420 in 1968-69 and thereafter stayed constant. Reserves are 25 per cent of the profits according to the bylaws; as such, one can conclude that either there were no profits made after 1969 or the management altered the bylaws and no additions to the reserve fund were made.

[1] One can notice that in good agricultural years there is an increase in working capital and other borrowings. For example, 1971-72 was a good year agriculturally and the peaks in working capital and borrowings occur in that year. The peak in deposits occurs in the following year (1972-73), indicating that rural savings are being mobilised. Share capital does not fit in the pattern, indicating that a good year does not affect the decision to join the society.

TABLE 4-8

FINANCIAL PARTICULARS OF THE PALMAKUL CO-OPERATIVE RURAL BANK
(Rs.)

Year	Total working capital	Owned Funds		Borrowings		Owned funds as percentage total working of capital
		Share capital	Reserves	Deposits	Others	
1965-66	364,470.26	59,856 (16.5)	575 (.1)	52,967.25 (14.5)	251,072.21 (68.8)	16.5
1966-67	262,473.93	60,198 (22.9)	835 (.3)	33,887.15 (12.9)	167,553.78 (63.8)	23.2
1967-68	328,580.07	64.113 (19.5)	3,180 (.9)	51,393.97 (15.6)	209,893.10 (63.8)	20.4
1968-69	489,094.12	79,617 (16.2)	3,420 (.6)	64,918.12 (13.2)	341,094.00 (69.7)	16.8
1969-70	352,902.96	121,573 (34.4)	3,420 (.9)	94,938.47 (26.9)	132,971.49 (37.6)	35.3
1970-71	1,022,018.40	169,904 (16.6)	3,420 (.3)	129,228.47 (12.6)	719,465.93 (70.3)	16.9
1971-72	1,467,400.61	203.429 (13.8)	3,420 (.2)	153,885.61 (10.4)	1,106,666 (75.4)	14.0
1972-73	1,367,310.87	237,073 (17.3)	3,420 (.2)	185,404.87 (13.5)	941,413 (68.8)	17.5
1973-74	644,885.30	234,634 (36.3)	3,420 (.5)	163,371.30 (25.3)	243,460 (37.7)	36.8
1974-75	968,338.09	262,317 (27.0)	3,420 (.3)	156,523.09 (16.1)	546,078 (56.3)	27.3

Notes: figures in parantheses are percentages of total working capital.

Source: Palmakul Co-operative Rural Bank.

A typical criterion of success, self-reliance, or efficiency is the proportion of owned funds to the total working capital of the financial institution. In most years, this share for the Palmakul co-operative has been approximately 20 per cent as shown in Table 4-8. In 1973-74, the percentage was 36.8 per cent--highest in the period under discussion. The corresponding proportions for all primary agricultural credit societies in Andhra Pradesh for 1970-71, 1971-72, and 1972-73 were 25.8 per cent, 28.5 per cent, and 27.7 per cent respectively.[1] The performance of the Palmakul bank was definitely below the average in these three years. One cannot make an accurate appraisal of efficiency based on this criterion, however, because of two fundamental qualifications. A high percentage of owned funds, far from indicating self-reliance, may indicate a higher level of borrowing since borrowing is limited by the amount of owned funds. The other criticism is that paid-up share capital is owned funds in name only because it is usually an amount deducted from a member's loan.[2] For farmers with holdings above 3 acres, the Palmakul bank deducts three per cent from a member's loan as share capital. As a consequence, this amount would represent other borrowings and it is incorrect to include such an amount in owned funds.

Johda contends that deposits as a proportion of total working

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[1] "A Brief Note on the Working of the Andhra Pradesh State Co-operative Bank, Ltd.", Hyderabad, 1973, p. 16. (Mimeographed).

[2] N.S. Jodha, "A Study of the Co-operative Short-term Credit Movment in Selected Areas of Gujarat", in Serving the Small Farmer, p. 73.

capital is a more reliable indicator of efficiency.[1] The percentage of deposits to total working capital was highest in the years 1969-70 (26.9 per cent) and 1973-74 (25.3 per cent) and in the other years ranged from 10.4 per cent to 16.1 per cent. Deposits as a percentage of total working capital for all primary agricultural credit societies in Andhra Pradesh for the years 1970-71, 1971-72, and 1972-73 was 7.2, 6.8, and 6.6 per cent respectively.[2] In those three years, the bank's performance was 12.6, 10.4, and 13.5 per cent--significantly above the state average. Consequently, if this criterion is taken as an indicator of performance, the Palmakul bank can be considered to be more efficient than the average primary society in Andhra Pradesh. A criticism that can be made of this criterion is that it does not really indicate the extent of mobilisation of rural savings because of the tendency on the part of the Managing Committee to deposit recoveries as various forms of deposits; consequently, an increase in deposits may indicate improvement in the repayment of loans rather than an increase in rural savings. In other words, the deposits may not really indicate self-reliance. The extent of this practice is not fully known but figures provided by the society must be viewed with some suspicion.

Table 4-9 presents the annual growth rates of share capital, deposits, reserves, and working capital for the Palmakul co-operative bank. Share capital has been consistently growing with a decline only in 1973-74. Deposits on the other hand have declined in 1973-74 and

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[1] Ibid, p. 73.

[2] "A Brief Note", p. 16.

TABLE 4-9

ANNUAL RATE OF GROWTH OF WORKING CAPITAL, SHARE CAPITAL, DEPOSITS, AND RESERVES
(percentage)

Year	Working Capital	Share Capital	Deposits	Reserves
1966-67	-28.0	1.1	-36.0	45.2
1967-68	25.2	5.1	51.6	208.0
1968-69	48.8	20.0	26.3	7.5
1969-70	-27.8	62.9	46.2	0.0
1970-71	189.7	32.7	36.1	0.0
1971-72	43.6	21.6	19.0	0.0
1972-73	-6.8	17.1	20.4	0.0
1973-74	-52.8	-1.9	-11.8	0.0
1974-75	50.2	18.4	-4.1	0.0

Source: Palmakul Co-operative Rural Bank.

1974-75. Reserves grew up to 1968-69 and then remained constant. The rate of growth in working capital has fluctuated widely with the highest growth in 1970-71 (189.7 per cent) and with the largest decline in 1973-74 (52.8 per cent). The average annual growth rate in this period for working capital was 18.4 per cent, share capital was 37.0 per cent, and deposits was 21.7 per cent. This society would fall into the category of societies where owned funds have outgrown working capital (as indicated by the growth in share capital) and, therefore, can be considered to be a society which is financially sound.[1] Another indicator of soundness is the extent of dependence on government financing. The share of the Government (the state government) has

[1] National Council of Applied Economic Research, Effectiveness of Cooperative Credit for Agricultural Production (New Delhi: National Council of Applied Economic Research, 1972), p. 50.

declined from 16.7 per cent in 1965-66 to 3.8 per cent in 1974-75. This indicates that the society's dependence on the Government has declined; the society is relying increasingly on its members for internal finances.

The other major criterion of banking efficiency is the percentage of loans overdue to loans outstanding. On June 30, 1975, the overdues for the society were Rs. 195,925.03 compared to Rs. 995,541.96 loans outstanding, i.e., 19.7 per cent of loans outstanding are overdue. The percentage of overdue loans which are demand loans is 27.8 per cent.[1] MT Conversion loans are 68.2 per cent of the overdues and special MTO loans are 3.8 per cent.[2] The probability of MT Conversion loans being repaid is usually extremely low; therefore, about 13.5 per cent of all loans outstanding will most likely not be recovered.[3] In 1972, the proportion of overdues to loans outstanding for all primary agricultural credit societies in Andhra Pradesh was 52.17 per cent.[4] Though this is the most recent figure available, one might assume that the figure for 1975 would not be significantly lower. Therefore, the performance of the Palmakul society is considerably better than most of the other societies in the state.

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[1]Demand loans are defined as short-term loans such as a crop loan.

[2]MT Conversion loans are short-term loans which are converted to medium-term loans due to drought conditions and other natural catastrophes. Special MTO loans are medium-term loans given for the purposes of irrigation and buying a bullock.

[3]The percentage of MT Conversion loans to total loans outstanding is 13.5.

[4]"A Brief Note", p. 16.

In conclusion, the Palmakul co-operative credit society is more efficient and self-reliant than the average society in Andhra Pradesh. The percentage of owned funds to total working capital is smaller than the average state figures in the years 1970-71 to 1972-73, but the percentage of deposits to total working capital is significantly higher for the society than the state average in those years. Also, the percentage of Government shares in share capital has definitely declined, a tendency which is not true for the state. Finally, the society has a significantly better record in recoveries than the average society in the state. One disturbing fact, however, is that reserves have not grown since 1968-69. Since a profit and loss statement was not provided, one cannot say whether the society has been operating at a profit or loss since 1968-69. Nevertheless, looking at the overall financial soundness of the society, it is impossible to imagine that the society has been operating at a consistent loss.

Equity[1]

In the minds of government planners, one of the purposes of the primary agricultural credit co-operative societies is to aid small farmers. The societies are supposed to actively encourage small farmers to join the society and provide them with production credit. In Table 4-10, the landholdings of borrowing members in 1975, by

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[1]The subsequent discussion of equity is limited to a breakdown of the loans disbursed by the primary co-operative on the basis of farm-size. The wider question of the effect of loans disbursed by the primary society on income distribution is not dealt with here but is approached tangentially in the discussion of the structure of the rural economy in Chapter V.

TABLE 4-10

DISTRIBUTION OF MEMBERS BY LAND HOLDINGS, VILLAGE-WISE FOR THE YEAR 1974-75

Village	Below 3 acres	3 to 8 acres	8 acres and above
Palmakul	53	44	12
Madhanpally	3	16	14
Muchintal	3	18	15
Pedda Thupra	10	36	15
Timmapur	5	14	16
Kothur	28	33	25
Teegapur	5	11	11
Mallapur	37	27	31
Gudur	23	23	31
Jukal	29	31	39
Nanajipur	11	31	23
Total	207	284	232

Source: Palmakul Co-operative Rural Bank.

village and size of holding, are illustrated. There is a fairly even distribution of farmers among the three size classification of borrowing members.[1] The percentage of farmers in the three classifications to borrowing members is as follows: 8 acres and above--32.3 per cent; 3 to 8 acres--39.5 per cent; and below 3 acres--21.2 per cent. When evaluating the share of loans disbursed to each of these groups, one must remember the respective percentage of the number of farmers in

[1] Approximately 73 per cent of total members are borrowing members.

each group to the total number of borrowing members.[1]

In Table 4-11 a breakdown of loans disbursed according to land holding size for the years 1967-68 to 1974-75 is presented.[2] With respect to crop loans, small farmers have received between 20 and 30 per cent of the total loans disbursed. In 1975, they received 19 per cent of the value of crop loans, although they comprised 21.2 per cent of total borrowing members. Their share in special MTO loans has varied from 35 per cent in 1970-71 to 10 per cent in 1973-74.[3] In 1972-73 and 1974-75, they did not receive any special MTO loans. The inequality in the disbursement of the special MTO loan is seen clearly when the total amount of this loan disbursed to the small farm group is calculated as percentage of the total amount disbursed from 1967 to 1975--the figure is 17.8 per cent. With respect to the MT Conversion loan, essentially the same picture holds. The farmers in the 0 to 3

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[1] A problem that is not mentioned in the following discussion is the question of whether an equitable distribution of loans according to percentage of each group to total borrowing members is sufficient for the small farmer to improve his position. One might argue that there should be definite bias towards the small farm to ensure that the large part of his credit requirements are met.

[2] Up to 1972-73, the Reserve Bank of India had only two classifications: 0 to 3 acres and 3 acres and above; consequently, data is presented only for these two classifications up to that year.

[3] An important qualification that should be mentioned here is that the land mortgaged for the special MTO loan is taken to be as representing the amount of land owned (even though the acreage owned may be significantly higher). The consequence is that a loan which is classified as being given to a small farmer may in reality have been disbursed to a large farmer. The figures presented here, then, may have a greater bias towards the large farmer than is indicated. This point was raised by Mr. Mohana Rao, Andhra University, in a private interview.

TABLE 4-11

BREAKDOWN OF LOANS DISBURSED BY LANDHOLDING
(Rs.)

Size of holding	Crop loan	Special MTO	MT Conversion
		1967-68	
0 -3 acres	50,235 (24)	-	-
3 acres & above	158,451 (76)	-	-
Total	208,686 (100)	Nil	Nil
		1970-71	
0-3 acres	113,100 (26)	75,654 (35)	-
3 acres & above	329,476 (74)	138,796 (65)	
Total	442,576 (100)	214,450 (100)	Nil
		1971-72	
0 - 3 acres	159,823 (30)	2,500 (15)	-
3 acres & above	376,859 (70)	14,552 (85)	-
Total	536,682 (100)	17,052 (100)	Nil
		1972-73	
0 - 3 acres	95,956 (28)	-	75,612 (14)
3 to 8 acres	115,910 (34)	30,630 (21)	198,536 (37)
8 acres & above	128,434 (38)	115,436 (79)	256,475 (49)
Total	340,300 (100)	146,066 (100)	530,623 (100)
		1973-74	
0 - 3 acres	3,506 (20)	11,492 (10	8,070 (9)
3 to 8 acres	6,880 (38)	19,560 (17)	21,165 (25)
8 acres & above	7,532 (42)	80,650 (72)	56,775 (66)
Total	17,918 (100)	111,702 (100)	86,010 (100)
		1974-75	
0 - 3 acres	102,124 (19)	-	-
3 to 8 acres	162,583 (31)	10,500 (100)	-
8 acres & above	259,365 (50)	-	-
Total	524,072 (100)	10,500 (100)	Nil

Source: Palmakul Co-operative Rural Bank.

acres classification received only 13.8 per cent of the total MT Conversion loans disbursed.

Although small farmers may receive an equitable share of short-term production credit (i.e., crop loans), the facility of turning a short-term loan into a medium-term loan so as to delay payment in times of drought is not equally available. For example, farmers with 0 to 3 acres received 30 per cent of crop loans in 1971-72 (a year of inadequate rainfall) and only 14 per cent of the MT Conversion loans in 1972-73. This holds true again in 1973-74 in which they received 10 per cent of the MT Conversion loan and 28 per cent of the crop loan in 1972-73 (another year of low rainfall).

In conclusion, though the situation of equity in short-term loans is not unfavourable for the small farmer, the situation is definitely unfavourable with respect to the special MTO and MT Conversion loans. The implication is that although the society provides production credit for the small farmer, it does not provide credit (i.e., special MTO loan) to alter the infrastructure of his farm so that increases in income could be of a more permanent nature.

Power Structure

Each society has a Managing Committee or a Board of Directors with clearly defined functions, the most important being to admit members, sanction loans, and decide the rate of interest on loans. The last function in practice is the perogative of the CCB. But the first two functions are of much importance since the power to control the composition of the society and the power to decide who gets what amount of loan is concentrated in the hands of a few men. One of the fundamental criticisms of the co-operative society in the literature

is that it is under the control of a few people who are usually persons of higher economic status.[1]

As such, it is crucial to see what type of men are on the Managing Committee of the Palmakul Co-operative Rural Bank. The term of office for the Managing Committee which is elected by the General Body is three years, but this is not always followed strictly as the Board of Directors (Managing Committee) may not consist of the same members at the end of the term as at the beginning of the term. Table 4-12 shows the Board of Directors as of June 27, 1965, June 29, 1968, June 29, 1969, and June 29, 1973. The Board of Directors as of June 29, 1969 served until 1972, and the Board as of June 29, 1973 served until 1974 and then was disbanded by the Andhra Pradesh government for illegal activities.[2] In the fall of 1975, there was to be another election to elect a new Board of Directors.[3] Looking at Table 4-12, one sees that the names of the same individuals appear year after year. G. Lohkshwarnath was on the Board of Directors from 1965 to 1972. From 1968 until the present day, the Board of Directors has not essentially changed in composition, only in the functions of the various men. The only difference between the list of the Board of Directors in 1969 and the last

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[1] S.R. Mehta and J.C. Bhatia, "Pattern of Leadership in the Rural Cooperative", Indian Cooperative Review, IX, 2 (1972), p. 278.

[2] Eleven directors were charged with black marketing of foodgrains, fertilisers, and controlled cloth.

[3] A government employee is presently the Manager of the society and when asked what precautions could be taken to ensure the same individuals who were on the last Board would not be re-elected, his answer was one of hopelessness. "They are powerful people and no farmer is willing to stand against them."

TABLE 4-12

LIST OF THE BOARD OF DIRECTORS,
PALMAKUL CO-OPERATIVE RURAL BANK

Name	Position	Village
	June 27, 1965	
K. Kistappa	President	Kuthur
G. Lokshwarnath	Vice-President	Shapur
M. Rama Rao	Treasurer	Ghanjmiagude
B. Sayanna	Director	Pedda Thupra
A. Venkat Swamy	Director	Mallapur
P. Venkat Reddy	Director	Jukal
Kista Reddy	Director	Nanajipur
Narayana Swamy	Director	Ghanjmiagude
Heeraman	Director	Madhanpally
K. Ram Reddy	Director	Muchintal
K. Anjaniah	Director	?
K. Lingappa	Director	?
	June 29, 1968	
K. Narsimha Chary	President	Palmakul
E. Swamy	Vice-President	Shapur
A. Madhava Reddy	Treasurer	Jukal
A. Chinappa Reddy	Director	Gudur
G. Lokshwarnath	Director	Shapur
B. Sayanna	Director	Pedda Thupra
K. Ram Reddy	Director	Muchintal
P. Venkat Reddy	Director	Mallapur
A. Yadi Reddy	Director	Timmapur
G. Jowardham	Director	Palmakul
G. Narayana Swamy	Director	Ghanjimiagude
V. Pandarikam	Director	Nanajipur
Chenna Reddy	Director	Kothur

Table 4-12 - continued

Name	Position	Village
	June 29, 1969	
Madhava Reddy	President	Jukal
G. Narayana Swamy	Vice-President	Ghanjimiagude
K. Narsimha Chary	Treasurer	Palmakul
A. Chinnapa Reddy	Director	Gudur
P. Venkat Reddy	Director	Mallapur
A. Yadi Reddy	Director	Timmapur
B. Chenna Reddy	Director	Muchintal
T. Sambasivudu	Director	Pedda Thupra
B. Ramulu	Director	Madhanpally
G. Lokshwarnath	Director	Shapur
V. Pandarikam	Director	Nanajipur
B. Narayana Reddy	Director	Teegapur
Ramprasad	Director	Kothur
	June 29, 1973	
A. Madhava Reddy	Treasurer	Jukal
K. Narasimha Chary	Director	Palmakul
A. Chinnapa Reddy	Director	Gudur
B. Narayana Reddy	Director	Teegapur
B. Chenna Reddy	Director	Muchintal
B. Ramulu	Director	Madhanpally
V. Pandarikam	Director	Nanajipur
A. Yadi Reddy	Director	Timmapur
Ramprasad	Director	Kothur
T. Sambasivudu	Direcotr	Pedda Thupra
P. Venkat Reddy	Director	Mallapur

Source: Palmakul Co-operative Rural Bank.

list is that two villages, Ghanjmiagude and Shapur, have withdrawn from the society, therefore, the names of these two village directors have been dropped. Essentially, the same eleven men have been in control of the society since 1969, and most of them had been on previous Boards of Directors.

Table 4-13 shows the land holdings of the 1969 Board of Directors as listed with the Palmakul society. All are big farmers except for Narsimha Chary who has been the village head of Palmakul for the last 30 years. The Manager of the society gave details of the men he knew on the board. A. Madhava Reddy owns approximately 80 acres, is a village head of Jukal, and is also a fairly large moneylender. A. Chinnapa Reddy from Gudur owns approximately 60 acres and is also a village head and moneylender. A. Yadi Reddy owns approximately 60 acres and is the police chief of Timmapur. B. Chenna Reddy owns approximately 70 acres and is alleged to have political ties with the Andhra government. Finally, G. Lokeshwarnath owns approximately 80 acres and is a big moneylender. About ten of the farmers interviewed said they borrowed from members of the Board. At least 46.1 per cent (6/13) of the 1969 Board were individuals with fairly large landholdings and political and financial power. The degree of their financial power is also indicated by Table 4-14 which shows the share capital holdings of the Board of Directors in 1974. As of June 30, 1974, the average share capital per member of the society was Rs. 128.4. All of the members of the Board except for Narashimha Chary and T. Sambasivudu have share capital well above this amount. In terms of shares, the average per societal member is five shares whereas A. Madhava Reddy, Chinappa Reddy, and Yadi Reddy have 27, 32, and 26 shares respectively.

TABLE 4-13

LAND HOLDINGS OF THE BOARD OF DIRECTORS AS OF JUNE 29, 1969 LISTED WITH THE CO-OPERATIVE SOCIETY
(acres)

Name	Size of holding
A. Madhava Reddy	40.10
K. Narasimha Chary	3.22
G. Narayana Swamy	25.06
A. Chinnapa Reddy	12.39
P. Venkat Reddy	20.32
A. Yadi Reddy	16.10
B. Chenna Reddy	-
B. Ramulu	8.04
Ramprasad	21.08
B. Narayana Reddy	21.10
V. Pandarikam	8.23
G. Lokshwarnath	15.00
T. Sambasivudu	-

Source: Palmakul Co-operative Rural Bank

TABLE 4-14

SHARE CAPITAL HOLDINGS OF THE BOARD OF DIRECTORS AS OF JUNE 29, 1973
(Rs.)

Name	Share of Capital
A. Madhava Reddy	673
K. Narasimha Chary	25
A. Chinnapa Reddy	810
B. Narayana Reddy	385
B. Chenna Reddy	45
B. Ramulu	423
V. Pandarikam	336
A. Yadi Reddy	639
Ramprasad	283
T. Sambasivudu	81
P. Venkat Reddy	352

Source: Palmakul Co-operative Rural Bank

These figures may not fully indicate the power of these individuals as it is a common practice to buy shares in the names of family members. It is indicative of Narsimha Chary's political power that though he only holds one share, he has been on the Board of Directors since 1967-68. One must conclude that there are definite economic and political characteristics which can be ascribed to the type of individual who is elected consistently to the Board of Directors.

The power structure that is revealed in this study of the Board of Directors is indicative of the power structure of the village in India. In much sociological and anthropological literature, the power of the landlord and the moneylender has been delineated.[1] In India, this economic power is related to caste. Agriculurists in Andhra are usually known as Reddis. The word Reddi is applied "to semi-private cultivators living in the forests of the lower Godavari basin as also to the semi-feudal landlords of the plains ..."[2] Usually the assumption in Andhra Pradesh about a man named Reddi is that he is from an agricultural family with large landholdings, fairly wealthy, and politically influential. Andhra politics is mostly the

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[1] See for example, Andre Beteille, Caste, Class, and Power: Changing Patterns of Social Stratification in a Tanjore Village (Berkeley: Univ. of California Press, 1965); and F.G. Bailey, Caste and Economic Frontier: A Village in Highland Orissa (Manchester: Manchester Univ. Press, 1957).

[2] Irawati Karve, Kinship Organization in India (3rd ed.; London: Asia Publishing House, 1968), p. 266.

purview of the Reddi caste. Reddis are powerful in the Telangana area (in which Palmakul is situated) and parts of the Andhra region. In certain parts of the Andhra region, another agricultural caste, Kapu, is the more influential caste. Most of the Reddis are not unwilling to undertake moneylending activities. The importance of the Reddis in the Palmakul area can be seen by the fact that six out of the eleven directors in 1973 were Reddis. Four out of the six men discussed as having power are also Reddis. One can see, therefore, that the power structure in the co-operative is not radically different from the power structure generally in the region or in the state.

Conclusion

The analysis of the first section in this chapter supports the point that the agricultural economy of Hyderabad District and the particular villages in the study is beset with the problems of poor soil, variable rainfall, and inadequate irrigation facilities. These restrictions have hampered the productive capacity of the area; the employment of the new cereal technology does not yield the expected results because basically this technology is suitable only for areas with assured water supply.

Within this low productive area, the primary credit co-operative society has undertaken the task of providing production credit to farmers. Though the society can be judged to be efficient on the basis of certain internal performance criteria, the distribution of loans by the co-operative society has been unequal. In the case of medium-term loans (spl MTO and MT Conversion loans), the data strongly indicates an inequality in their distribution. An important point to be noted is that the majority of loans overdue are MT Conversion loans;

one can then draw the implication that a large percentage of loans overdue can be attributed to the medium and large farmers.[1] A valid conclusion, therefore, is that although production credit tends to be provided equally to all farmers, credit to alter the infrastructure of the farm and credit to overcome natural catastrophes such as droughts are not equally available to all.

One explanation for this bias in the distribution of loans is the nature of the power structure in the co-operative society. An examination of the Board of Directors has shown that certain influential individuals have been in positions of power consistently. An alternative explanation provided by the officials of the co-operative society is that small farmers, on the whole, are less credit worthy than other farmers and consequently medium-term loans are denied to them. Credit-worthiness becomes a crucial variable as the size of the loan increases. The size of the crop loan for the small farmer tends to be much smaller than a medium-term loan. The credit-worthiness of the small farmer then is the crucial variable determining whether the farmer receives a medium-term loan. Both variables--the nature of the power structure and credit-worthiness of the farmer--together explain the bias of the co-operative society. But the crucial point is that the co-operative society by its loaning policies reinforces the imperfections of the rural economy such that a certain class of farmers cannot break the pattern of unproductiveness.

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[1] This particular point that large farmers have the highest percentage of overdues has been often made in the literature. See for example, Uma J. Lele, "The Roles of Credit", p. 422.

CHAPTER V

A MODEL OF THE STRUCTURE OF THE RURAL ECONOMY

The first objective of this chapter will be to discuss the role of institutions in the modernisation process of agriculture. Any such discussion must necessarily include an analysis of institutional change and the relationship between institutional change and technical change. A second objective is to delineate the structure of the rural economy. The analysis will be concerned with both the input market and the output market, for as K.N. Raj says, there is an "organic inter-relationship" between the two markets.[1] The study of the input markets will focus on the land, labour, and capital markets. The discussion of these markets will primarily follow the line of thought presented by Griffin.[2] His thesis is that factor markets in developing countries are not only highly imperfect but also inter-dependent. He makes the further point that these imperfect factor markets affect the choice of methods of cultivation. Income is not only dependent on the method of cultivation chosen but also on the selling price in the product market. The product market in the rural sector is analysed in terms of a model first developed by Fowke to explain differences in selling prices in the Canadian grain market from

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[1] K.N. Raj, "Agricultural Development and Distribution of Land Holdings", Indian Journal of Agricultural Economics, XXX (Jan-Mar 1975), p. 10.

[2] Keith Griffin, The Political Economy of Agrarian Change.

approximately 1900 to 1954.[1] This model reveals some basic insights into the situation in the developing countries. A picture of a less-than-perfect rural structure in India will emerge from this discussion of factor and product markets. This less-than-perfect rural structure constrains the effectiveness of the co-operative society and in large part explains the biasedness of the primary co-operative society.

Dynamics of Institutional Change

Bottomley's assertion that economic growth must take place before institutions can be effective in eliminating inequalities in the rural economy highlights the issue of what role an institution plays in the modernisation of agriculture.[2] What is the interaction between institutional change and technical change? Does one precede the other or, more importantly, is one a necessary precondition for the other to occur? Perhaps agricultural productivity is a bird which needs two wings to take off--one wing being technical change and the other institutional change.

A useful starting point of discussion on institutional change is Schultz's paper "Institutions and the Rising Economic Value of Man".[3] In this paper, Schultz argues that institutions provide services and, therefore, the best framework for an analysis of

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[1] V.C. Fowke, The National Policy and the Wheat Economy (Toronto: University of Toronto Press, 1957).

[2] Anthony Bottomley, Factor Pricing and Economic Growth In Underdeveloped Areas (London: Crosby Lockwood & Sons, Ltd., 1970) p. 207.

[3] American Journal of Agricultural Economics, 50, (December, 1968).

institutional change is that of supply and demand. Equilibrium is reached when the rates of return for institutional services and other services reach equality. His final point is that growth alters demand for services and, consequently, changes in institutions occur. He illustrates this point by postulating that agriculture acquires a growth momentum. This momentum, he implies, will induce farmers to demand changes in institutional arrangements. The possible demands, as envisioned by Schultz, are more flexibility in tenancy contracts, more irrigation facilities, and a larger supply of credit with better timeliness and terms (i.e., more co-operatives).[1] A question that is left unanswered by Schultz is: What is the implication for institutional change when growth declines?

Further analysis that derives its logic from neoclassical economics is the model presented by Davis and North.[2] Their model attempts to predict the timing and level of institutional change. The variable exogenous to the model is labelled the institutional environment which is "the set of fundamental political, social, and legal ground rules that establishes the basis for production, exchange, and distribution."[3] A set of endogenous variables is called the institutional arrangement which is defined as "an arrangement between economic units that govern the ways in which these units can co-operate

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[1] Schultz, "The Rising Economic Value of Man", p. 1120.

[2] L. Davis and R.D. North, Institutional Change and Economic Growth (London: Cambridge University Press, 1971).

[3] Ibid, p. 6.

and/or compete."[1] Davis and North also contend that the institutional arrangement must either produce a structure that can realise external profits or provide a mechanism which will bring about a change in the laws so that new rules can be established and external profits realised. This arrangement can be at three levels--individual, voluntary, or governmental. The unit which makes the actual decision about change in the institutional arrangement is called the primary action group. The unit which oversees the implementation of the change is called the secondary action group.

A fundamental question relates to why the primary action group might want a change in the status quo. The answer that Davis and North give is that there are external profits to be internalized. The external profits are due to either a change in the exogenous variables or the usual neoclassical reasons: economies of scale, externalities, over-coming risk aversion, market failures, and improvements in imperfect markets (primarily reduction in information costs and transaction costs). Given this general framework as to why change may occur, the authors go on to describe the actual process of institutional change.

Davis and North postulate that there will be several time lags in the process of change. The first lag is the lag of "perception and organization". This lag depends on the certainty and the size of future profits, the number of individuals involved, the number of alternative arrangements (if a possible arrangement already exists), and the quality of the communication and transport systems.

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[1] Ibid, p. 7.

The lag of invention depends on the size and certainity of profits, the number of possible arrangements which are already in existence so they can be easily imitated, the stability of the legal and political environment and the restrictions of the economic environment as to what is legal and illegal. Another lag is the lag of "menu selection" which depends on the number of possible arrangements, the time path of benefits and costs associated with each arrangement, and the proportion of fixed costs in the total cost of existing arrangements. The final lag is the "start-up time" lag which depends on the certainty and size of profits, the number of individuals involved, the area of disagreement between the individuals composing the primary action group, the frequency of government elections, and the balance of power between opposing political parties. The crux of the model is that at various stages along the way, different factors either help or hinder the process of institutional change--the crucial factors being the size and certainty of profits, the availability of "arrangemental technology", organisation costs, operating costs, the cost of "getting stuck" with unwanted decisions and the time distribution of costs and revenue. The rest of the book is concerned with whether this model can explain the various arrangemental changes that occurred during the course of economic growth in the United States. In essence, the analysis of Davis and North is a more sophisticated version of Schultz's simple demand and supply analysis.

Ciriacy-Wantrup is in opposition to the view that institutional change occurs when there is a change in demand for the services provided by institutions. His opposition stems from the belief that "the demand for changes of institutions is always opposed

by the demand for the status quo or demand for change in the opposite direction."[1] Equilibrium depends on the relative weights of opposing interest groups in the political arena rather than the marketplace. The power element (i.e., economic and political power), is the crucial determining factor in institutional change. Schmid and Randall argue that any complete analysis of the process of institutional change should also include an analysis of who dominates who and who has the greater say about the form of the institution.[2] This analysis gives more depth to Schultz's proposition that institutional change occurs when there is a change in the demand for the services provided by the institution.

Of greater importance to our subject is the relationship between technical change and institutional change. Is one a necessary precondition for the other? Bottomley would argue that technical change must occur before institutions can change. An example of his argument is that if the demand for credit can be increased by the employment of new production techniques, then alternative forms of credit institutions will replace the moneylender or, at least, the interest rate will go down. Or, as Schultz would say, there would be

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[1] S.V. Ciriacy-Wantrup, "Natural Resources and Economic Growth: Role of Institutions and Policies", American Journal of Agricultural Economics, 51, (December 1969), p. 1319.

[2] A. Allan Schmid, "Analytical Institutional Economics: Challenging Problems in the Economics of Resources for a New Environment", American Journal of Agricultural Economics, 54, (December 1972) and Alan Randall, "On Appraising Environmental Institutions: Comment", American Journal of Agricultural Economics, 56, (November 1974)

an increased demand for the services of these alternative institutions. If the dissemination of the new production techniques is taken as a necessary precondition for institutional change, then the question of how this dissemination is to take place is left unanswered. Bottomley and Schultz both assume that somehow this diffusion of innovation occurs. But Bottomley shows that the factor markets are imperfect so that if dissemination is left to the market, the process may be very lengthy and highly biased towards large landowners. Would such limited and biased innovation cause sufficient demand for institutional change to occur? The answer must be no and one is still left with the original question unanswered. For the diffusion of technology to take place, I would argue that institutional change has to occur. The answer might best be put in the form of a question. How can a small farmer innovate unless the co-operative or the commercial bank supplies him with credit?

Here one must enter into a brief discussion of the demand for credit associated with new technology. Bottomley would contend that new technology generates an increase in the demand for credit. This contention is supported by Sharma and Prasad who conclude: "The empirical findings of this study indicate that even at the current levels of technology there exists a large potential market of credit which is expected to be doubled as a result of further technological development in agriculture."[1] In contrast to this finding is the conclusion of Desai and Desai that the new technology did not create

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[1] J.S. Sharma and B. Prasad, "An Assessment of Production Credit Needs in Developing Agriculture", Indian Journal of Agricultural Economics, XXVI (Oct/Dec 1971), p. 511.

a significant additional demand for credit. As they conclude: "It was only in the situation of new technology with expanded irrigation resources that one-third of the sample farmers needed additional resources."[1] They add that this amount was not very large. This gives additional support to my contention that technical change may not create sufficient demand for institutional change to occur. This issue has not been fully resolved but, regardless of the answer, credit institutions are seen as having a vital role to play in the diffusion of the new technology. An important finding by Desai and Naik is that "owned funds of farmers [mostly large farmers] were the preponderant source of financing current farm expenditure on HYVs and borrowing formed a low proportion of the total input expenditure on the new varieties of the crops."[2] In contrast, Schulter and Mellor have found that small farmers who adopt the new techniques are very dependent on co-operative credit.[3] This then shows that the institution can encourage the adoption of innovation.

The implication of the above conclusion is that institutions do have a vital role to play in the modernisation of agriculture. Hayami and Ruttan see the role essentially as the one described above--to encourage diffusion of new technology; however, they further add

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[1]Desai and Desai, Farm Production Credit, p. 102.

[2]M. Desai and B. Naik, "Prospects of Demand for Short-term Institutional Credit for High-Yielding Varieties", Indian Journal of Agricultural Economics, XXVI (Oct/Dec 1971), p. 458.

[3]M. Schulter and John Mellor, "New Seed Varieties and the Small Farm", Economic and Political Weekly, VII, 13 (1972), p. A-35.

owned 68.2 per cent of the cultivated area. This pattern is repeated in the Philippines where 58 per cent of the cultivated area is owned by the top 10 per cent. The next step in Griffin's argument is that "the implicit rental rate of land to the landlord tends to be less than the social opportunity cost of land, while the implicit rent paid by peasants tends to exceed the social opportunity cost."[1] If the land market was perfectly competitive, these differences in implicit rent would be eliminated by the selling or renting of land until equality between the opportunity costs of the landlord and peasant was reached. But the landlord, being a local monopolist, will not sell knowing full well that such an action would reduce the price of land. Depending on risk and costs of production, however, he may rent the land and enter into one of the types of landlord-tenant relationships which Griffin elucidates (i.e., sharecropping, leasehold, or owner-operation).

The next market Griffin deals with is the rural capital market. His argument is essentially the same as that in the case of the land market. As he succinctly points out:

> Landlords are more liquid than small peasants. The former have idle cash balances upon which they can draw to finance purchases of material inputs and make wage payments. Moreover, they can obtain capital easily on the organized credit market. They have ready access to commercial banks outside the farming locality and can obtain loans at preferential interest rates since their wealth, income and status make the risk of lending to them minimal. Furthermore, the larger farmers are able to use their political influence to ensure that government credit programmes cater to their needs, to the neglect of the needs of less powerful and influential cultivators.[2]

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[1] Ibid, p. 22.

[2] Ibid, p. 26.

that the only way institutions can fulfill this role is to eliminate the built in biasedness towards large farmers and the substitution of capital for labour.[1] Turning our attention specifically to the primary credit co-operative society, this institution can aid the process of modernisation by recognizing the importance of an assured water supply to progressive farming. Lal Deepak notes that with an assured water supply, yield variability decreases, fertiliser use is better, and there is a change in the cropping pattern away from dry land crops.[2] Schulter and Mellor also emphasize that availability of irrigation may be the major factor contributing to uncertainity for the small farmer.[3] Uncertainity, they continue, is the binding constraint for credit. Risk is another constraint for the small farmer for he is considered to be more credit unworthy. The co-operative society, to ensure that modernisation is equally beneficial to all, must eradicate the biasedness against the small farmer.

Though the question of how institutional change occurs is unresolved, one must conclude that technical change is not necessarily a precondition for institutional change. The relationship is more complex than outlined above, but essentially the relationship can be viewed as a circular one. Technical change may influence institutional change and vice versa. But more importantly, the institution's role

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[1] Hayami and Ruttan, Agricultural Development, p. 295.

[2] Lal Deepak, "Agricultural Development in Maharashtra", Economic and Political Weekly, IV, 52 (1969), p. A-208.
See Appendix B for the effect of assured water supply on cropping pattern in the Palmakul area.

[3] Schulter and Mellor, "New Seed Varieties", p. A-36.

in agricultural modernisation is to aid in the process of the diffusion of new technology. The inadequacies of the primary credit co-operative society in fulfilling this role have been the subject of the previous chapter. Hopefully, the delineation of the structure of the rural economy may provide a plausible explanation which can shed light as to why these inadequacies occur.

Impact of Imperfect Factor Markets on Methods of Cultivation: Griffin's Thesis[1]

Griffin begins his analysis of factor market structure in the rural sector of poor nations with a discussion of the land market. His conclusion is that the land market is highly imperfect. He develops his argument by first showing that in many developing countries the ownership of land is highly concentrated. As he says: "The majority is deprived of land because most of the land is possessed by a tiny minority. Cases can be found where 5 per cent of those active in agriculture possess 60 per cent or more of the cultivable surface, and 10 per cent of all landowners may account for half or more of the land."[2] The argument is supported by data from India, the Philippines, and Pakistan. For India, he shows that in 1954-55, the top 7.7 per cent by farm size owned 52.5 per cent of the cultivated area. Figures for Pakistan show a similar trend; the top 21 per cent

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[1]The analysis in this section draws heavily upon material in Griffin, The Political Economy of Agrarian Change; Raj, "Distribution of Land Holdings"; and Bottomley, Factor Pricing.

[2]Griffin, The Political Economy of Agrarian Change, p. 18.

In other words, Griffin is saying that the sources of credit are more limited for the small farmer due to a lack of assets (primarily land). The sources which are available to the small farmer charge a higher interest rate so that the opportunity cost of capital for the landlord is smaller than the social opportunity cost of capital which, in turn, is smaller than the opportunity cost of capital for the small farmers. Griffin then cites data from the Philippines and Indonesia to show that small farmers pay a rate of interest any where from 15 per cent to 200 per cent, usually the source of the loan being a moneylender.

The last factor market Griffin deals with is the wage market. He argues that the control of the landlord in the land and capital markets gives him a monopsony in the labour market. With a control over material resources, the landlord has the capability to hire a sufficient amount of labour to affect the local wage rate. Government laws on minimum wages may force the landlord to pay a wage higher than the opportunity cost of the small farmer. But, Griffin notes, other social institutions such as apartheid or caste may encourage exploitation of a certain class of labour, even though no one person has monopsony power.[1] Again, he reiterates:

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[1]Another institution that increases the landlord's power is his policy of paying in kind. Almost all farmers need labour at the time of transplanting rice and the landlord can attract labour more easily by paying in kind since most labourers will have run out of their stock of grain by this time. By paying in kind the landlord may be paying a much lower wage rate than the small farmer. Many large farmers interviewed in this study said they did not sell grain because it was used to pay servants and labourers. For this point see Appendix B.

"In an agrarian economy, control of land, credit and water enables landowners to influence the local labour market as well."[1] In other words, Griffin is arguing that not only are factor markets imperfect but they are also highly interdependent.

K.N. Raj supports Griffin's view when he notes: "The choices open in the land, labour, commodity and capital markets are not independent of each other but very closely interdependent."[2] In a previous article, Raj showed that not only is the ownership of land highly skewed but the renting of land is also highly skewed.[3] In other words, those who owned a small amount of land could lease-in a very small percentage of the land available for leasing. His figures for 1954-55 show that though those below 2 1/2 acres were 50 per cent of those reporting leased-in land, they only received 7.4 per cent of the total leased-in land. Raj concludes: "This implies that, if owned land is regarded as analogous to equity capital, and leased-in land as similar to debt, the operation of the land markets in India has exhibited features very like those found in capital markets in more developed countries - in particular, that the ability to borrow is governed in general by the amount of own-capital."[4]

This is also a feature of the capital market (i.e., there is interdependency between capital and land markets since own-capital

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[1] Griffin, Political Economy of Agrarian Change, p. 30.

[2] Raj, "Distribution of Land Holdings", p. 7.

[3] K.N. Raj, "Ownership and Distribution of Land", Indian Economic Review, V (April, 1970), p. 25.

[4] Raj, "Distribution of Land Holdings", p. 8.

in the capital market is also owned land). The inter-dependency of the markets is extended to the commodity market through the use of grain loans. Raj argues that the effective rate of interest associated with grain loans is high, usually near 30 per cent. Most of these loans are taken by households with small holding because the demand for working capital is to meet consumption requirements of the household between harvests. It is important to remember that agricultural credit consists of two components--production and consumption. As Rajagopalan says: "Agricultural credit may be defined as the amount of investible funds made available for the purpose of development [production] and sustenance [consumption] of farm productivity."[1] It is in the area of consumption credit expecially, Raj argues, that the small farmer is exploited most openly as the small farmer must pay a high premium on the loan and has a weak bargaining position. Raj concludes that the exploitation need not be as naked as in the grain loan "for such high rates can be realised indirectly by the manipulation of the prices at which commodities concerned are bought and sold."[2] Hence, Raj extends Griffin's analysis of the rural capital market into the area of consumption credit and further strengthens our conclusion that this market is highly imperfect.

The links with the labour market occur, Raj argues, when loans have stipulated conditions on the supply of labour to the creditor. That this is a common practice, he says, can be found by

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[1] V. Rajagopalan, "Farm Liquidity and Institutional Financing for Agricultural Development", Indian Journal of Agricultural Economics, XXIII (Oct/Dec 1968), p. 26.

[2] Raj, "Distribution of Land Holdings", p. 10.

referring to literature on the labour market in India. The differentiation between the various markets becomes hazy when labour is paid in kind or where there are stipulations about the timing of the supply of labour (i.e., the difference between a tenant and an agriculutral worker or the difference between a debtor and an agricultural worker becomes hard to distinguish).

Raj's analysis on the whole extends and supports Griffin's thesis. In the capital market, he extends Griffin's analysis into the area of consumption credit. He also gives more depth to Griffin's discussion of the labour market by delineating the links between labour and capital markets. Not only does the landlord affect the local wage rate by his actions but he also controls the actual supply of labour by his moneylending activities. The major point of the Griffin and Raj analysis is that factor markets are not only imperfect but also highly interdependent and Raj would extend this analysis to include the point that factor markets are also interdependent with the product market (i.e., commodity market).

Bottomley in certain areas extends Griffin's and Raj's analysis. Griffin, when discussing the land market, concludes that the landlord will not sell his land knowing that such an action will lead to a decrease in the implicit rental value of land. Bottomley extends this argument to the renting of land, implying that not only is there skewedness in the ownership of land but also an under utilisation of land. The logic of the model used to derive this conclusion is basically one of demand and supply analysis. Since the discussion is about a factor, the demand curve is characterized as the VMP (value of marginal product) curve. This curve, according to textbook theory

represents the marginal physical product (MPP) of employing one additional unit of land times the price at which the additional produce can be sold. Economic theory tells us that the curve declines for two reasons: the best land is already under cultivation and marginal land will have less productivity; and price declines because of increasing produce on the market. However, Bottomley assumes "that the MPP of a landlord's terrain declines solely as a result of its increasing application to a fixed quantity of capital and tenant or hired labour."[1] He keeps the assumption of price falling with increased output. There is also a marginal value product (MVP) curve--more commonly known in North American textbooks as the marginal revenue product curve. This curve represents the MPP of one additional unit of land times the marginal revenue (MR) derived from the additional output. This curve declines for the same reasons as the VMP curve but declines faster because MR declines at a faster rate than price. The supply of land curve is based on the interest charge on the capital employed to prepare new land for use and some yearly maintenance cost. The curve AMO (annual marginal outlay) is increasing because as more marginal terrain is brought into use the costs increase, it is also a proxy for the marginal cost curve. This discussion is presented diagrammatically in Figure 1 below. For the landlord, the equilibrium level of land use would be at OX where MVP equals marginal cost. The social optimum would be at OX_1 (where AMO = VMP) which is greater than the private equilibrium implying an under utilisation

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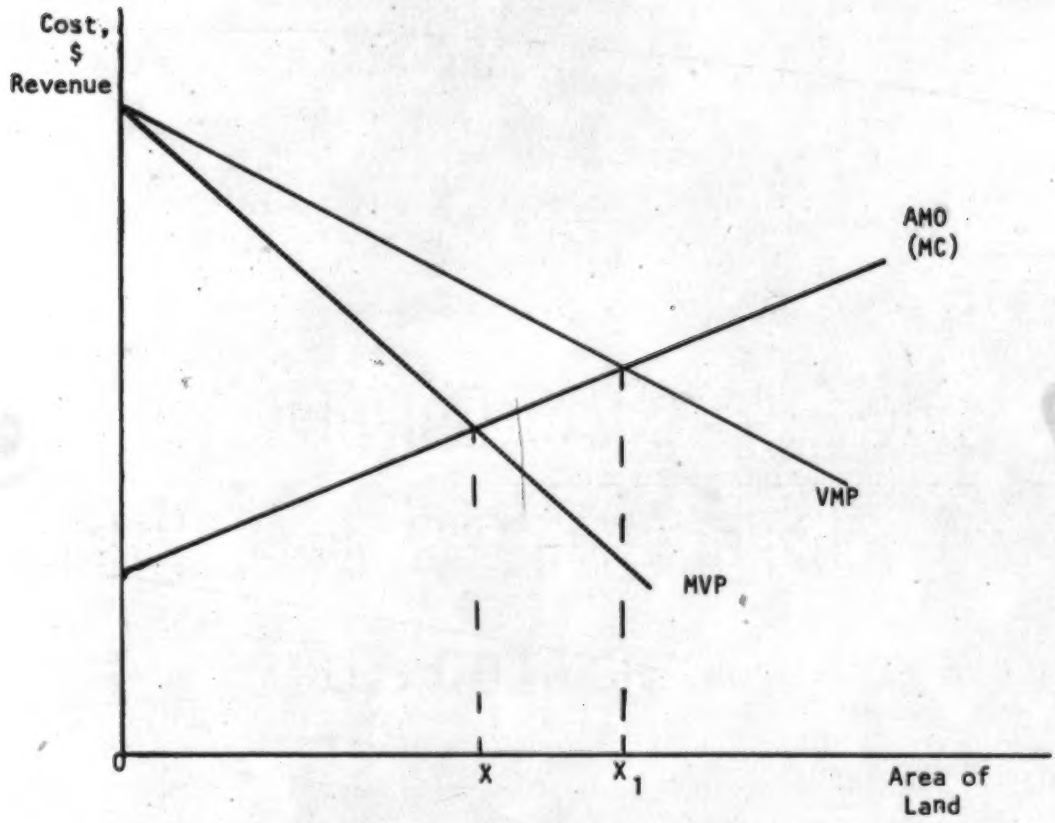
[1] Bottomley, Factor Pricing, p. 47.

FIGURE 5-1

UTILISATION OF LAND BY A MONOPOLIST



Source: Bottomley, Factor Pricing, p. 46.

of land (measured by XX_1)

One weakness of this model is that it is based on an assumption of limited supply of labour and capital. Previously, Bottomley had mentioned that many developing countries face a situation of unlimited supply of labour. Griffin would argue that in such a case, the landlord benefits more by renting or using the land because rental rates will be high and wage rates will be low. Nevertheless, it is possible that landlords may rent below the social optimum due to the fact that MPP and price still decline even in the case of unlimited

supplies of labour.

In the rural capital market, Bottomley concludes that the major variables contributing to the high rate of interest are the opportunity cost of money, administration costs of lending, and risk. He then launches into a discussion of how to cut down these various costs so as to reduce the rate of interest. One reason why the opportunity cost of money is high is that the moneylender cannot lend continuously and his balances must lay idle for certain periods of time. Bottomley's solution to this problem is for the government to offer treasury bills for the duration of the period when balances are idle. Another interesting suggestion he makes is that increasing the money supply may decrease the opportunity cost of money. But he says that the relationships are not at all clear as it is possible food prices may increase and consequently reinfornce the high opporutnity cost of money.

Administration costs, according to Bottomley, are dependent on the number of loans the moneylender can make, the size of a loan, the duration of a loan, and the cost of supplementing his reserves. The number of loans a moneylender makes is dependent on the number of borrowers, the number of loans negotiated by existing borrowers, and the number of lenders. Bottomley feels that only the development process can affect these variables. The number of borrowers and loans would increase if new techniques of production were introduced and demand for credit increased as a consequence. The number of money-lenders could only be reduced if there were more credit sources and greater competition which Bottomley says would be a consequence of the development process. The size of a loan would only increase if there

were greater credit requirements due to new production methods. Average length of a loan cannot be reduced until the time horizon of both borrower and lender is changed by the development process. Costs of supplementing reserves can be reduced if crops can be stored properly so as to be a reliable collateral for the moneylender. Bottomley sees the problem in terms of the moneylender not receiving reliable collateral which he in turn can use to receive loans from a commercial bank or other agencies.

Risk varies according to whether the loan is secured or not. The variation in risk on a secured loan depends on the marketability of the collateral and changes in the market value of the collateral. Social customs may restrict the buying of property which is foreclosed (for example, having to receive the permission of the village head to buy foreclosed property). Changes in the market value of collateral may occur when the prices of crops change. Risk can decline if storage of crops is improved so that value of the crop due to deterioration does not decline or if there is diversification in production (i.e., not rely on one crop). On unsecured loans, the degree of risk is dependent on the farmer's willingness to pay and his ability to pay. Ability to pay is not related to willingness to pay. Though much cannot be done about willful defaulters, those unable to pay could change their position if they could increase output beyond the increase in family size. In other words, the conclusion is that risk can decline if new production techniques can be introduced.

The gist of Bottomley's analysis is that "high rates of interest are inextricably bound up with low levels of productivity. As economic growth takes place, interest rates will fall of their own

accord, and so help to create the surplus as well as the encouragement for investment and still further economic growth."[1] One point that is obviously lacking in Bottomley's analysis is the interdependency of the factor markets. Yet the underlying tone of his analysis is that the markets are imperfect and in each market there are two opposing forces. The landlord of the land market may be the moneylender in the rural capital market. This is never said openly but one is led to believe by the tone of the analysis that there is a possible connection. Though Bottomley lists various variables that contribute to high interest rates, there is no indication that landlords face these high interest rates. The discussion is based on the unstated assumption that it is the small farmers who face high interest rates. The imperfection of the rural capital market or the interdependency of this market and the land market is not openly denied either. One can only say that Bottomley's discussion does not directly refute Griffin's and Raj's conclusions but gives deeper understanding to some of their points (for example, the underutilisation of land and the costs of money-lending).

To be able to accept the Griffin thesis of highly imperfect and interdependent factor markets, one must see supporting data outside of that which he presents in his book. To support his contention of concentration of land ownership, Griffin cites data for India for 1954-55. Michie presents more recent data for India for 1960-61. Table 5-1 presents the distribution of land owning households by farm size for rural India for 1960-61. One sees that the bottom

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[1] Bottomley, Factor Pricing, p. 107.

TABLE 5-1

DISTRIBUTION OF LAND-OWNING HOUSEHOLDS BY SIZE CLASS--RURAL INDIA, 1960-61

Size Class (acres)	Number of Households			Area Owned			Average Holding (acres)
	No ('000)	Per Cent Of Total	Cumulative Per Cent	('000) acres	Per Cent Of Total	Cumulative Per Cent	
upto - 0.49[a]	19005	29.70	29.70	1732	0.54	0.54	0.90
0.50 - 0.99	4574	7.15	36.85	3330	1.05	1.59	0.73
1.00 - 2.49	11484	17.94	54.79	19064	6.00	7.59	1.66
2.50 - 4.99	10984	17.16	71.95	39401	12.39	19.98	3.58
5.00 - 7.49	6007	9.39	81.34	36783	11.57	31.55	6.12
7.50 - 9.99	3310	5.17	86.51	28517	8.97	40.52	8.61
10.00 - 12.49	2310	3.61	90.12	25551	8.04	48.56	11.06
12.50 - 14.99	1375	2.15	92.27	18852	5.93	54.49	13.71
15.00 - 19.99	1793	2.80	95.07	30708	9.66	64.15	17.13
20.00 - 24.99	1094	1.71	96.78	24152	7.60	71.75	22.08
25.00 - 29.99	622	0.97	97.75	16932	5.33	77.08	27.22
30.00 - 49.99	1005	1.57	99.32	37460	11.79	88.87	37.27
50.00 and above	437	0.68	100.00	35379	11.13	100.00	80.96
Total	64000	100.00	-	317861	100.00	-	4.98

a - excludes households owning no land or owning less than 0.005 acres.

Source: Barry H. Michie, "Variations in Economic Behaviour and the Green Revolution: An Anthropological Perspective", Economic and Political Weekly, VIII, 26 (1973), p. A-70.

54.79 per cent of households (those with less than 2.5 acres) own only 7.59 per cent of the land. On the other hand, the top 7.73 per cent of households (those owning 15 acres or more) own 45.51 per cent of the land. Related data is presented in Table 5-2 which shows the distribution of household operational holdings by farm size for rural India, 1960-61. Again a skewedness in the distribution of holdings is observed. The bottom 64.4 per cent of cultivating households control 19.8 per cent of the operational area. Another interesting figure in Table 5-2 is that 26.3 per cent of the households have no operational land; in all likelihood, these households are landless agricultural labourers. In a recent article, relating to Andhra Pradesh, Parthasarathy and Raju note: "Out of 7 million households more than 30 per cent are landless labour households.[1] They also cite that in the West Godavri delta area, 50 per cent of the cultivable land is possessed by 14 per cent of the households. That there is a highly skewed concentration of ownership of land in the hands of a minority is a contention that holds true in India.[2]

The next point to consider is what the sources of agricultural credit are and to what extent they are utilised. For Griffin's analysis

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[1] G. Parhasarathy and K.S. Raju, "Is There an Alternative To Radical Land Ceiling?", Economic and Political Weekly, VII, 27 (1972) p. 1282.

[2] A reader may ask what is the relevance of this data to Palmakul area. Though I have no definite breakdown of ownership in this area, my intutitive guess is that what generally holds true in India and Andhra Pradesh would hold true in this area. A possibility is that since this area is dry-land, the skewedness may not be as great as in wet land.

TABLE 5-2

DISTRIBUTION OF HOUSEHOLD OPERATIONAL HOLDINGS BY SIZE CLASS--RURAL INDIA, 1960-61

Size Class (acres)	Estimated Households ('000)	Per Cent of Cultivating Households	Per Cent of all Households	Estimated area Operated ('000 acres)	Per Cent Total Area	Total Persons ('000)
0.00[a]	19030	00.0	26.3	0000	00.0	86016
upto--0.49	7024	13.1	9.7	1083	0.3	19035
0.50 - 0.99	4355	8.1	6.0	3211	1.0	19989
1.00 - 2.49	11326	21.3	15.6	19026	5.8	54025
2.50 - 4.99	11717	21.9	15.2	41991	12.7	61749
subtotal	(53452)	(64.4)	(73.8)	(65311)	(19.8)	(240814)
5.00 - 7.49	6537	12.2	9.0	39529	12.8	38421
7.50 - 9.99	3483	6.5	4.8	29804	9.1	21351
10.00 - 12.49	2492	4.7	3.5	27456	8.3	16298
12.50 - 14.99	1438	2.7	2.0	19629	6.0	9635
15.00 - 19.99	1832	3.4	2.5	31360	9.5	12659
20.00 - 24.99	1088	2.0	1.5	23912	7.2	8051
25.00 - 29.99	629	1.2	0.9	17100	5.2	4554
30.00 - 49.99	1047	2.0	1.4	38919	11.8	8208
50.00 and above	468	0.9	0.6	36565	11.1	4086
Totals	72466	100.0	100.0	329585	100.0	363779[b]
	53436[c]					277763[c]

a - households operating no land or less than 0.005 acres.
b - due to rounding errors the column total will not agree with this number.
c - this figure calculated by excluding those operating no land or less than 0.005 acres.

Source: Michie, "Variations", p. A-71.

to have relevance, a significant amount of borrowing by small farmers must be from moneylenders. The sources of credit in a village are usually moneylenders (professional and agricultural), traders and commission agents, landlords, relatives and friends, and the co-operative society. In 1951-52, the All-India Rural Credit Survey concluded that 93.7 per cent of all loans were provided by private sources (moneylenders, traders and commission agents, landlords, relatives and others).[1] The share of the co-operatives that year was 3.1 per cent. In 1961-62, the All-India Rural Investment and Debt Survey revealed that the share of private sources had declined to 81.3 per cent whereas the share of the co-operatives had risen to 15.5 per cent. The survey also found that in 1960-61, 69 per cent of the borrowings in Andhra Pradesh were provided by both professional and agricultural moneylenders. In a further national study in 1963-64, it was concluded that moneylenders provided 73.08 per cent of loans while co-operatives provided 16.02 per cent.[2] In a more recent study, Subramanian and Nagarajan found that in one South Indian village (Chettiapatty), 85 per cent of the farmers depended on the moneylender and 10 per cent depended on the co-operatives.[3] In the other village studied (Panjampatty), the situation was radically different with 50

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[1] H.C. Jain, "Sources of Credit and Changes in Their Relative Importance", Indian Cooperative Review, IX, 4 (1972), p. 502.

[2] Rajagopalan, "Farm Liquidity", p. 27.

[3] R. Subramanian and B.S. Nagarajan, "Sources and Utilisation of Agricultural Credit in Selected Villages in Madurai District", Indian Co-operative Review, VI, 3 (1969), p. 431.

per cent of the farmers depending on co-operatives for credit, 25 per cent depending on the moneylender, and 25 per cent depending on relatives. A breakdown of the data of both villages according to size of holding reveals that in both villages, farmers with less than 5 acres depended heavily on the moneylender and other sources (excluding government agencies). For example, in Chettipatty, thirteen out of fourteen farmers depended on sources other than the co-operative; in Panjampatty, the corresponding figure was twenty-six out of thirty-six farmers. For farmers with more than 5 acres, in Chettipatty four out of five farmers depended on moneylenders and other sources whereas in Panjampatty the split was even between private sources and the co-operative society. Jain states: "The Private agencies in India are still [1972] extending 60 per cent of the total credit made available to the farmers by all sources."[1] One observes that there has been a slow decline of the share of private sources in total loans from 1951 to 1972. A possible explanation is that "a substantial part of the co-operative credit has gone to the well-to-do-farmers. To this extent the dependence of the well-to-do-farmers on the village moneylender might have declined ..."[2] Some support for this view is the finding that in Panjampatty, half of the farmers with more than five acres utilised the co-operative for credit whereas the other half utilised other sources of credit. Frankel emphasizes an important point when she says that

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[1] Jain, "Sources of Credit", p. 502.

[2] B. Prasada Rao and R.M. Mohana Rao, "Regulation of Money-Lending--Some Suggestions", Indian Cooperative Review, IX, 3 (1972), p. 353.

many farmers need consumption loans and these are easily provided by the moneylender.[1] One must remember that agricultural credit has two components--production credit and consumption credit. Though the co-operative may provide production credit for the small farmer, until it provides consumption credit the small farmer will be dependent on the moneylender.

Additional support for Frankel's and Griffin's thesis with respect to the rural capital market is found in the data of this study. The farmers interviewed were questioned concerning their sources of credit for production purposes. Eight out of the twelve farmers with 8 or more acres received loans from the moneylender which varied in amount from Rs. 1,000 to 4,000. Six out of eleven farmers with 3 to 8 acres borrowed from the moneylender with the loan varying in size from Rs. 500 to 1,000 with one farmer receiving a loan of Rs. 3,000. Finally, three out of eight of the small farmers received loans from the moneylender, the amount varying from Rs. 200 to 500. Furthermore, all of the small farmers, 75 per cent of the medium farmers, and 33 per cent of the large farmers interviewed borrowed money for consumption purposes. One might conclude that in the area of production credit, the small farmer does not have easy access to credit especially if the loan from the co-operative is inadequate.[2] However, small loans for consumption are easily available, which tends to keep the small farmer in the bondage of the moneylender. This evidence is in keeping with

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[1] Frankel, Indian's Green Revolution: Economic Gains and Political Costs, p. 133.

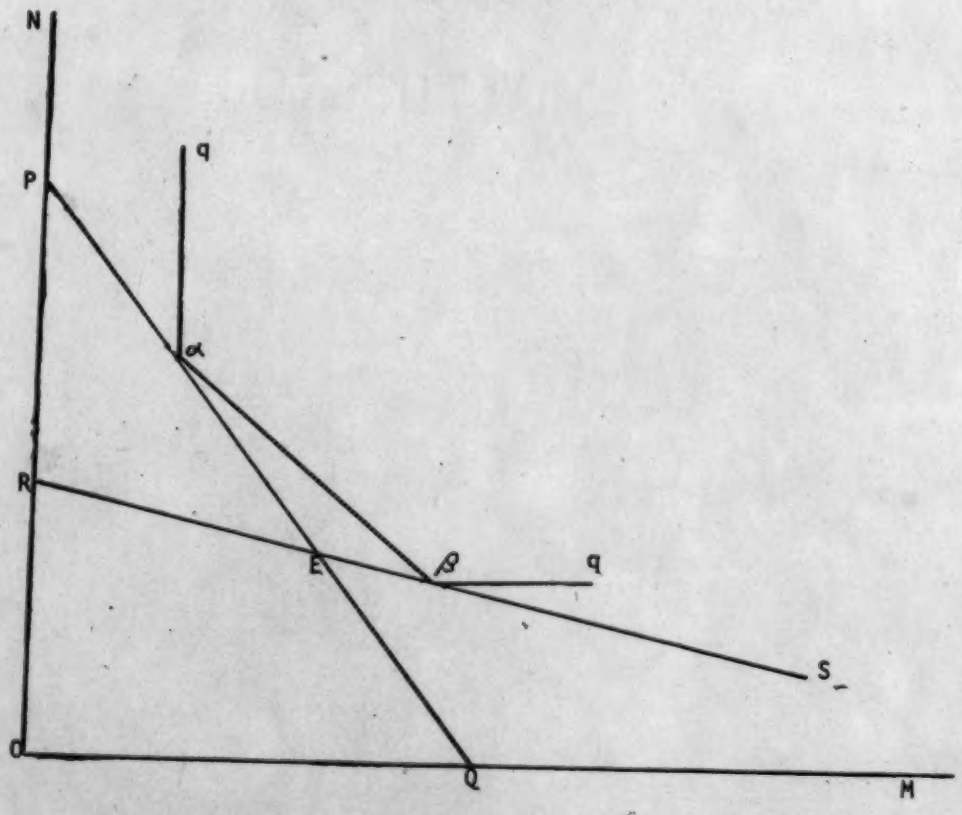
[2] Of the thirty-one farmers interviewed, only five said the loan received was adequate or excessive.

Griffin's thesis that the rural capital market is imperfect with biasedness towards the big farmers (especially in terms of production credit).

This imperfect and interdependent factor market structure, Griffin continues, affects the methods of cultivation available to the farmer. The previous analysis has shown that small farmers and big landlords face different factor prices. Material inputs are expensive to the small farmer but relatively inexpensive to the big landlord. The method of cultivation that would be chosen by each of these groups is illustrated in Figure 5-2.

FIGURE 5-2

CHOICE OF TECHNIQUE OF PRODUCTION



Source: Griffin, Political Economy of Agrarian Change, p. 36.

In the diagram, N is labour and M material resources (i.e., land and capital: for example, tractors and irrigation facilities); qq represents the amount of N and M needed to produce a certain output.[1] PQ and RS represent the relative factor prices faced by the small farmer and the landlord respectively. From the diagram, it is possible to see that the small farmer will choose α (a labour-intensive technique) and the landlord will choose β (a capital-intensive technique). Griffin goes on to argue that technical change which occurs in the area REP will be superior for those using α but economically irrelevant for those using β technique. The opposite holds true for techniques falling in the area of QES. He then argues that the techniques of the "green revolution" are landlord biased (i.e., falling the area of QES). His reasoning is that such inputs as an assured water supply and fertilisers are not as easily accessible to the small farmer due to factor market imperfections. A rebuttal might be that the co-operative society is disbursing fertilisers and seeds actively to all farmers. Certainly the data in this study would support such an argument (i.e., in the disbursment of crop loans, there was no significant bias). Yet loans for the purposes of irrigation were biased. Griffin argues that whether there is an adequate water supply is the crucial variable in determining whether the new technique is worthwhile or not. He cites data from the Philippines to show that on

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[1] In Griffin's terms, qq is a "discontinuous isoquant (...) which indicates the various combinations of labour (N) and material inputs (M) which can be used to produce a given quantity of rice." See Griffin, Political Economy of Agrarian Change, p. 35. In Mrs. Robinson's terminology, qq is a "technical frontier" which represents the spectrum of production techniques; see Joan Robinson, The Accumulation of Capital, (London: Macmillan, 1956).

rainfed farms the new technology did not pay-off. As he says:

> On the rainfed farms in Gapan, for instance, between 1965 and 1970 the area under high yielding varieties rose from zero to 31.6 per cent, yet yields rose only from 1.7 to 1.8 tons per hectare. At the same time the amount of fertilizer used more than doubled, rising from 9.2 to 20.5 kg. per hectare, and the proportion of farmers using herbicides, insecticides, and tractors increased by well over one hundred per cent. Since output remained roughly the same while material inputs rose substantially, value added must have declined. Innovation almost certainly led to greater poverty on these farms and one would anticipate that in the future the farmers will revert to the traditional varieties of rice.[1]

One can conclude that the co-operative through its biasedness and the rural capital market through its imperfection affect the choice of the method of cultivation of the small farmer.

In summary, Griffin has shown that factor markets in the rural economy are not only highly imperfect but also highly interdependent. He then demonstrates that these imperfect markets restrict the choices available to the small farmer in terms of his method of cultivation. I would add that the co-operative society in its practices is also highly imperfect and also acts to restrict the small farmer in his choice of method of cultivation (to be discussed later). Since the conclusion is that on the input side of the system, the small farmer is restricted in his activities, one must turn to see if on the output side he can participate in a system more closely approximating perfect competition.

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[1] Griffin, The Political Economy of Agrarian Change, p. 58.

Structure of the Product Market: The Fowke Thesis

In the literature on developing countries, the product market is described as being characterized by numerous small traders and a few dominant traders with the peasant farmer not always having perfect choice. Fowke, in his recounting of the development of grain marketing institutions in Canada, gives a very clear description of the type of market structure that would be found in a developing country. In his analysis, Fowke examines the "national policy" in Canada and the commitment to competition versus monopoly. His conclusion is that if monopoly was in direct conflict with the interests of national policy historically, it was regulated; otherwise, the government would take no action. His major point is that though the agricultural sector grew significantly, monopoly was tolerated in this sector since there were no conflicts with national policy. Hence, any changes that occurred originated due to the agitation of farmers.

The farmer that Fowke deals with is a specialized agricultural producer--producing mostly wheat. This type of farmer was not self-sufficient but very dependent on the market to sell his produce and to buy his consumption goods. To better his position, the farmer could either agitate to increase the price of his product or to decrease the price of consumer goods. Realistically, he could only attempt to affect the former and Fowke argues that within the market structure of the early 1900's, even this was a very difficult step to take.

The market for wheat was characterized by different selling prices at various points (i.e., local price in the local market, spot or terminal price in Winnipeg, and Liverpool price in the overseas market). Local price was further subdivided into "street" and "track"

price. "Street" price was the price paid for wheat available in less-than-carload quantities. On the other hand, "track" price was the price paid for boxcar quantities of wheat. The crucial variables in determining these prices were "1) the number of bushels gross weight; 2) dockage [reduction in gross weight due to foreign materials in the wheat] and shrinkage [reduction in gross weight to compensate for waste that takes place in receiving, storing and shipping] ; 3) grade; ..."[1]

Because of the dependence on the railway for transporting wheat, the farmer had to deal with one of the elevator companies within his reach. The elevator companies tended to personify three distinctive types of functional persons: 1) merchant; 2) warehouseman; and 3) commission agent. The merchant bought grain with the expectation of profit at a later date and different place. On the other hand, the commission agent acted either for the seller or the buyer; he personally did not undertake any risk. Finally, the warehouseman only provided storage facilities and equipment for weighing and transferring the product. In short, the farmer had a choice of three agencies at the local market. But those with less-than-carload quantities of wheat were restricted by their output to deal only with the merchant. Those with boxcar quantities could either sell or ship the grain to a terminal point. Consequently, the difference between the "track" price and the terminal price was significantly less than the difference between the "street" price and the terminal price. The farmers felt the situation would be further aggravated if there was monopoly in the local market for the difference between terminal and

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[1] Fowke, The National Policy and the Wheat Economy, p. 110.

"street" price would be much greater than cost-plus-reasonable profit. Another complaint against the elevator companies was that they mixed and undercleaned grain so that minimum quality was achieved and farmers consequently received a lower price.[1]

Because of farmers' agitation over these type of practices and the spread between "street" and terminal prices, the governments of Saskatchewan and Alberta held investigations into the actions of the elevator companies. The finding was that there was a concentration of ownership among the elevator companies leading to a monopoly situation; the recommendation was that there should be co-operative elevators. They were an alternative in the market structure; their major concern was to narrow the spread between terminal and "street" price and provide adequate elevator facilities. Though Fowke would say the co-operative elevators were successful, there was considerable criticism that certain interests were in control and that the co-operative management had separate interests from the farmers.

The next step in the historical development of grain marketing institutions was the introduction of the wheat pools which were considered to be a new type of co-operative organisation. Essentially, the wheat pool was still a co-operative elevator but with a different emphasis in objectives. The wheat pool was more concerned with narrowing the spread between local and overseas price and the spread of seasonal prices.

The concern with the seasonal spreads was due to the

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[1]This charge was particularly directed towards terminal elevator companies.

speculative activity in the open market. In the grain futures market, the speculator dealt with quantities of grain which in reality did not exist. A speculator could agree to either sell or buy a quantity of grain in the future. The objective was not to go through with the deal but to break the agreement according to price movements. Farmers objected to this practice because: 1) prices paid to them had a close relation to prices in the futures market and 2) the influence of the speculators was seasonal. The implication of the last objection is that at the time of harvest when a large quantity of wheat is dumped on the market, if speculators did not participate in the futures market, prices of futures and wheat would decline tremendously to the benefit of the speculators. The elimination of this speculative profit was seen as necessary to better the position of the farmer. The market structure of the Canadian grain trade changed considerably with the rejection of the open market system and the creation of the Canadian Wheat Board, but that is not a story of immediate interest here.

Fowke, then, has presented a picture of an imperfect output market structure in the early 1900s in Canada. The farmers not only faced differentiated prices at the local level depending on the quantity they had to sell but also a significant price spread between local and terminal points. They also faced wide seasonal fluctuations due to speculative activity in the futures market.

How well does this picture describe the situation in a developing country? The common belief about output market structure in India is:

> "First, that because of the monopolistic nature of private trade, the price spread between the producer and the consumer is excessively high;

> second, that there are regional variations in prices which are partly caused by semimonopolistic elements that try to exploit inefficiencies in the market structure; and third, that unduly wide seasonal price fluctuations are caused by the speculative hoarding and profiteering practices of traders.[1]

This essentially agrees with Fowke's model even though the farmer in India is neither a single crop producer nor dependent on the railway. The most important contribution of the Fowke analysis is to show how the farmer is limited, by his economic conditions, in his choice of to whom to and where to sell. Those farmers with less-than-boxcar quantities had to sell to the elevator company at the local level; there was no choice. Taking the Griffin analysis, if a farmer, due to factor market imperfections, has to employ a technique of production which produces an output not sufficiently large, he may be limited in his choice in selling in the output market due to an imperfect product market structure.

Uma Lele argues that all price spreads can not be so easily explained by referring to monopolistic tendencies in the local market or the profit motive of speculators. In her article on Sholapur, she examined five primary wholesale jowar markets in Sholapur district in Maharashtra. All five were regulated markets; in a regulated market there is an inspector who grades the grain and sets a minimum price according to the grade. First, she examined whether there was competition in these agricultural markets. After listing the various types of traders in each market, she concluded that the number of traders was large enough such that any collusive price policy would be hard to cement.

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[1] Uma J. Lele, "The Traders of Sholapur", in Developing Rural India: Plan and Practice (Ithaca, N.Y.: Cornell University Press, 1968), p. 239.

One of the types of traders she discussed was the "A" type trader who can sell or purchase anywhere in the market area (i.e., the entire area served by the market). In other words, this trader is not restricted to the market yard. She states that this type of trader was the most important functionary in the market. For the five markets she studied, in all but one the number of "A" type traders was very small compared to the other types of traders. Lele does not discuss what percentage of the sales and purchases in the market area and the market yard can be attributed to these traders. If their share was quite large, then one can admit the possibility of the "A" type traders undertaking collusive activity.

Next she examined whether there was significant difference between prices at the primary wholesale market and the urban market. Her conclusion is that not only are price movements between the local and urban markets correlated but also that price movements between the local markets are correlated. What differences there are she feels can be explained by the unavailability of transportation facilities and a ban on shipment of jowar to other states. Finally, Lele examined the seasonal price spread from 1956 to 1963. She concludes: "The movement of jowar prices in Sholapur between 1956-57 and 1962-63 illustrates the great year-to-year variation in seasonal pattern shown by prices of agricultural commodities."[1] Her explanation for this variation is that there is correspondence between changing market conditions and seasonal variation. She argues that price varies according to what the trader expects crop production to be and how

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[1] Ibid, p. 281.

accurately he predicts the output. Two other variables influencing price spread, according to Lele, are the availability of transport and the government policy of banning exports to other states. Even if the trader can accurately predict output if transportation is not available, the output can not reach the market and price will vary accordingly. The same holds true when grain can not move freely to meet demand in other states. Her conclusion is that seasonal variation can be explained by factors other than the profit motive of speculators.

The major criticism that can be made of Lele's analysis is that she studied only one type of market. The marketing facilities available to a farmer in a village are: trader, village market, regulated market (which she studied), and unregulated market.[1] She does not indicate the percentage of farmers in the market area who utilise the market and what type of farmer utilises the market. The crucial problem is that the small farmer may be limited by his resources in the choice of market. Her analysis is based on the tacit assumption that every farmer has a perfect choice. She mentions that small farmers sell their produce to the trader who then brings in the produce to the market. Nowhere does she compare the price the farmer

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[1] The trader in many instances may be the moneylender. An unregulated market is similar to the regulated market except that there is no grading of the grain and setting of a minimum price by an inspector. Farmers tend to go to the unregulated market if their main concern is to dispose of the grain due to a lack of storage facilities; in other words, bargaining can begin at a lower level than in the regulated market.

receives from the trader and the price in the market.[1] To show that regulated markets are working competitively is not sufficient evidence to say that the output market is perfectly competitive.

Of the eight small farmers interviewed in our study, five said they sell whatever surplus they have to the moneylender or trader in the village. Four of the medium farmers said they sell to the moneylender, and five said they went to Shamshabad where there is an unregulated market. Three of the large farmers said they sell to the moneylender or trader.[2] Most of the others said they did not sell grains or went to the regulated market of Hyderabad. Those who did not sell grains sold commercial crops such as chilies in Hyderabad itself. When officials at the co-operative society were asked about the marketing behavior of their members, they confirmed this pattern. They said small farmers sold mostly to moneylenders if not grains then vegetables. Other farmers mostly went to Shamshabad. Large farmers they said, tended not to sell their grains and commercial crops on the whole were sold in the city or Shadnagar (where there is a regulated market).

The pattern that is revealed, then, is that farmers sell to different sources according to farm size. Because of lack of data, one can not compare the different selling prices. A reasonable

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[1] Lele might argue that the difference in price will not exceed transportation cost. But one must also consider that such institutional factors as size of loan from the trader, future credit requirements, and repayment performance will affect the price accepted by the farmer. In that case, difference in price may well exceed transportation cost.

[2] These farmers had virtually no wet land and what they did produce they mostly kept for home consumption. Surplus was very little and this they sold to the moneylender to not only pay off past debts but also because he was the most convenient source.

hypothesis would be that these various prices do differ, though one cannot say how significant the differences are. Fowke's analysis of "street" and "track" prices lends support to this hypothesis. A plausible conclusion is that the output market is imperfect though the degree of imperfection is not known. Fowke's analysis would support such a conclusion and Lele's analysis would not directly contradict it.

The Impact of Imperfect Markets on the Primary Credit Co-operative Society

It is crucial at this point to evaluate the effect of the foregoing model of the structure of the rural economy on the primary credit co-operative society. There are two key effects: (1) the actions of the co-operative society reinforce the unequal income distribution in the rural sector, and (2) the co-operative society assumes the rigidities of the rural economy.

The first effect is a result of the lending policies of the credit society which are not in opposition to the structure of the rural economy. Basically, the co-operative takes as given the imperfect factor market structure and bases its activity on this given. For the medium-term loan, the society lends on the basis of land. The small farmer suffers in the disbursement of this loan since he does not have sufficient mortgagable land due to the unequal distribution of land ownership. This unequal distribution, as Griffin notes, is a result of imperfections in the land market. Basically then, the co-operative society accepts a historically determined distribution of land ownership as given. This acceptance is in spite of the knowledge that there is no inherent tendency for the land ownership pattern to

to converge to a "less imperfect" equilibrium.[1] The society attempts to change this distribution through the market (i.e., giving loans and encouraging the use of new innovations). Even this attempt fails due to the imperfections in the output market. Another policy which is not in opposition to the imperfect factor market structure is the non-disbursement of consumption loans. This sends the small farmer into the hands of the moneylender since other sources of credit are not available to him. The lending policies of the primary credit co-operative society do not alter the imperfect market structure but in all likelihood reinforce that structure.

An important result of the policy of the society to lend on the basis of land is that small farmers very rarely receive medium-term loans for the purpose of irrigation. The implication is that most small farmers do not have irrigation facilities. Since the new technology is an irrigated technology, the determining factor in reaping the full benefits of employing the new technology is an assured water supply. The conclusion is that the small farmer who utilises the crop loan without an assured water supply will not realise the expected output. Another factor that may decrease the expected output is the inability of the small farmer to procure production

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[1] This is so because the whole process of acquisition of land is circular. Initial land ownership creates wealth so more land can be acquired. Credit for investment to improve production of land and thereby increase wealth is available on the basis of land ownership. Therefore, the convergence in all probability would be towards a high concentration of ownership of land in the hands of a small minority.

credit from other sources. The crop loan in most cases is inadequate,[1] therefore, the small farmer due to the imperfections in the credit market structure must utilise an amount smaller than required. Both these factors--inadequate water facilities and inadequate credit--contribute to a decrease in the expected output. If the marketable surplus is small after home consumption, the small farmer due to the imperfections in the output market will be limited in his choice of to whom to and where to sell. Consequently, the average price he may receive will probably be below the market price. The large farmer, on the other hand, with an assured water supply and alternative sources of credit, can fully realise the benefits of employing the new technology. With his larger marketable surplus, he has more perfect choice in the output market and the average price received by him will be near the market price. As a consequence, the income differential between the large and small farmer is not only reinforced but also possibly increased. The primary credit co-operative society by operating on policies that are not in opposition to the imperfect market structure of the rural economy not only strengthens that structure but also reinforces the unequal income distribution which is a result of the said structure.

The second effect is a result of the fact the effective rate of interest on the crop loan for the small farmer is higher than that for the large farmer. Basically, the effective rate of interest is

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[1] Michael G.G. Schulter, "The Role of Co-operative Credit in Small Farmer Adoption of the New Cereal Varieties in India", Occasional Paper No. 64 (Ithaca: Cornell Univ. Press: 1973), p. 3.

higher for the small farmer because he gets less marketable return from his loan due to many factors (as outlined above)--lack of adequate irrigation facilities, inadequacy of crop loan, and imperfections in the output market. This lower marketable surplus affects the farmer's repaying capacity. The lower marketable surplus and the consequent difficulty in repaying the loan increases the cost of the loan beyond the normal interest rate charged for the small farmer. One can postulate that there may be some break-even point in farm size. Above this size, the surplus will be great enough to repay the loan promptly.[1] Below this size, the probability of non-repayment may be great; this may translate into actual non-repayment. A probable consequence would be increasing dependence on the moneylender since the co-operative will deny future credit. Another result will be a decrease in the utilisation of co-operative credit in the future by small farmers because of the higher cost of a loan from the co-operative. The conclusion of this analysis is that the effective cost of a crop loan for the small farmer is higher than the interest rate charged on the loan due to the imperfections of the market structure in the rural economy. Consequently, the effective rate of interest on the crop loan is not the same for all farmers but is differentiated by farm size. This differentiation in the interest rate and the bias towards large farmers in the disbursement of loans on the

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[1] It is important to note here that in reality a large percentage of overdues are attributed to large farmers. The non-repayment of loans by large farmers may be attributed not to higher cost but to their political power. See Lele, "Roles of Credit", p. 422. An additional point is that large farmers use the co-operative society to avail of the subsidy element; therefore repaying the loans from the society is of the lowest priority. See Dantwala, "Preface", p.32.

basis of land are two rigidities of the rural structure which the co-operative society assumes. In fact, these rigidities become fundamental aspects of the institutional structure and policy actions of the co-operative society itself.

The major conclusion of this analysis is that the primary credit co-operative society, through its policies which do not fundamentally alter the rural structure, not only strengthens and reinforces the unequal income distribution in the rural sector but also assumes rigidities of the imperfect market structure in the rural economy.

Conclusion

It has been shown in this chapter that institutions (the primary credit co-operative society) have a vital role to play in agricultural modernisation. The primary credit co-operative society fulfills this role by engaging in the diffusion of new production techniques. But there have been inadequacies in the policies of the society such as a bias towards large farmers.

The contention put forth here is that these inadequacies in the policies of the society can be largely explained by an examination of the factor market structure in the rural economy. Following Griffin's thesis, we have shown that the factor markets in India are not only highly imperfect but interdependent. The co-operative society, as long as it lends on the bais of land, participates in this imperfect market structure. In fact, the co-operative itself becomes an imperfect factor market with respect to credit.

Imperfections in the product market, it is argued, worsen the bias of the factor markets. The argument is that farmers face

differentiated output prices and are restricted by their economic conditions in the choice of price. In other words, the farmer, due to his economic condition, is restricted in the choice of how much to sell, to whom to sell, and where to sell. The conclusion is that the co-operative society, in order to fulfill its role in the modernisation process, can not only be concerned with the diffusion of new innovations. It must also be concerned that the increase in output leads not only to an increase in income but also to an equitable distribution of this increased income. To achieve this goal, the co-operative society must take an active part in the marketing process. To this point in time, the marketing co-operatives in existence mainly deal with commercial crops. Many small farmers do not grow such crops but produce either foodgrains or perishable produce (i.e., vegetables or fruits). Consequently, the co-operative society must introduce new policies so that the marketing situation is improved. To play an adequate role in the modernisation process, the co-operative society must not only be concerned with increasing output but also with seeing that additional output yields a tangible increase in income which is equitably distributed.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND POLICY IMPLICATIONS

Summary

To study the role of institutions in agricultural development, this study has focused on the primary credit co-operative society. The historical development of credit co-operatives was examined to understand certain areas which have been problem areas since the inception of the credit co-operatives. These areas were found to be the policy of open membership and the lack of adequate irrigation facilities. The basis of changing agricultural production was studied; this study revealed the importance of "off-farm" inputs--for example, fertiliser, high-yielding varieties, and pesticides. Once the role of the primary credit co-operative society in the distribution of these inputs was estalished, the study turned to an evaluation of the Palmakul Co-operative Rural Bank. The Bank was found to be efficient on the basis of certain internal performance criteria. In the distribution of medium-term loans, the co-operative society was found to be biased towards the large farmer. To explain this biasedness, a model of the structure of the rural economy following Griffin and Fowke was postulated. This model not only helped to explain the behavior of primary co-operatives but gave a deeper understanding of the problems faced by small farmers in rural India.

Conclusions and Policy Implications

In the transformation of Indian agriculture, agricultural credit has several functions. As Uma Lele states:

> It must finance the needs arising from the burgeoning technological revolution in agricultural sectors. It must encourage and mobilise savings from the incomes generated by the expanding agricultural production. As an important factor of production, credit must play a pivotal role in fostering an equitable distribution of the increasing agricultural income.[1]

The effectivenss of agricultural credit in performing these various functions depends to a large extent on "an appropriate institutional infrastructure." Government planners have emphasized the importance of such institutions as co-operatives and commercial banks in fulfilling some of these functions. This study has focused on the primary credit co-operative society and its performance in fulfilling the previously mentioned functions.

The primary credit co-operative society of this study has been found to be efficient on the basis of certain internal performance criteria. But this efficiency is not at all an accurate indicator of the performance of the co-operative society in fulfilling the above mentioned functions. The society only partly meets the increased credit needs due to the employment of new technology as evidenced by the fact the crop loan in most cases is inadequate. It was also previously stated that co-operatives have only met 30 to 35 per cent of the credit requirements of Indian farmers. The particular society in this study has begun to mobilise savings as revealed by the pattern that deposits with the society increased significantly after good agricultural years. It is in the area of "fostering an equitable distribution of increasing agricultural income" that co-operative societies have not

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[1] Lele, "Role of Credit", p. 413.

been successful.

The conclusion of this study based on a model of the rural economy via Griffin and Fowke is that the primary credit co-operative society by its lending policies not only supports the imperfect market structure of the rural economy but also reinforces the unequal distribution of income in the rural sector. The co-operative society, moreover, assumes the rigidities of the rural economy--for example, biasedness towards large farmers in medium-term loans and differential rates of interest according to farm size.

The analysis has shown that an appropriate institutional framework does not stop at the creation of a single institution (i.e., the credit co-operative society). The problems of the co-operative society in fostering an equitable distribution of income have been due to imperfections in the market structure of the rural economy. Particularly, the land ownership pattern and the inadequacy of irrigation facilities have been major obstacles for the co-operative societies since their inception. Therefore, land ownership and water rights must also change so that an integrated institutional framework can be formed. A framework of complementary institutions can better ensure an equitable distribtuion of income in the rural sector.

A more specific policy implication for the co-operative societies is finding an alternative basis for the disbursement of medium-term loans to the small farmer for the purpose of irrigation. Instead of disbursing the loan only to one person, the loan might be given to several adjoining small farmers. Such a policy would sidestep the issues of minimum farm size for the efficient use of a pumpset as well as credit-worthiness of the farmer which is usually based on some

minimum amount of mortgagable land. Since the primary advantage of a primary co-operative society is that it has close contact with and intimate knowledge of its members, the society can afford to be flexible in its lending policies. This study has shown, for instance, that a majority of small farmers in the Palmakul area own land by the river; a possible implication is that there may be groundwater potential so that the probability of a medium-term irrigation loan being a success may be relatively high. Such a scheme to improve the infrastructure of the small farm might make the increases in income, due to the employment of new technology, of a more permanent nature. It would also improve the credit-worthiness of the small farmer which has often been cited as the primary cause for the farmer's inability to procure credit. Basically, such a scheme is extremely important in any attempt to break the rigidities of the structure of the rural economy.

Another major policy implication of this study is the need to strengthen the ties of the credit co-operative society with an output market institution such as a marketing co-operative society. No loans should be disbursed without a clause concerning the repayment of loans in terms of marketable produce. Some produce pledge loans are being currently disbursed but no action is taken to ensure that the repayment is in terms of produce. Other marketing institutions besides the existing ones should be developed which will eliminate some of the present imperfections in the output market.

Finally, the primary credit co-operative institutions should re-evaluate the policy of open membership. This policy has encouraged the entrance into and the control of primary societies by large farmers and moneylenders. If the co-operative society is concerned with

giving improved services to the small farmer, the elimination of large farmers from the society may be imperative. A related implication is the call for a multi-agency approach in the area of credit (i.e., entrance of commercial banks into the rural area). Commercial banks have begun to disburse loans in agricultural areas but there has been no clear demarcation that these institutions will only serve large farmers while co-operatives will only serve small and medium farmers.

Essentially, the major policy implication of this study is that there must be institutional changes in the input and output markets of the rural sector so that an integrated institutional framework can be created. This integrated institutional framework (and not one institution alone), together with technical innovations, can not only increase agricultural production but also ensure that the consequent increase in agricultural income is more equitably distributed.

Limitations of the Study

Empirical research, especially that based in field study in a developing nation, is subject to certain limitations. A major limitation of field-work conducted in a short period of time is the incomplete and sometimes unreliable nature of collected data. To understand the subtle and intricate relationships of groups in any social, economic, or political system, a period of more than a few months is required. Social scientists have often stated that even a year may not be sufficient if the researcher is still considered to be an outsider at the end of his stay. As a consequence, the data collected may be cursory and must be viewed with circumspection as to how closely it indicates the reality of the situation. Due to the perennial difficulty of understanding the nature of any social system, a tendency of the social scientist is to hypothesize with respect to the nature of the system and attempt to collect data which would substantiate his hypotheses.

This thesis also faces the above mentioned difficulties. The time duration of the field-work conducted by the author was approximately six weeks. The data, as a result, is by no means complete. Another limitation of the data is that interviews were conducted in a public area. Sensitive questions on the financial particulars of an individual, for instance, were not answered completely. In other words, approximate figures rather than actual figures were often given. Nevertheless, the data does provide some insights into the nature of the rural economic system in a South Indian setting and the problems faced by a small farmer. However, it must be remembered that some of the conclusions of this study are based on general impressions rather than on rigorous

statistical inferences from a strong data base.

A final qualification that must be made is that some of the research objectives were not fully met. Although the performance of the Palmakul Co-operative Rural Bank was evaluated in terms of certain efficiency and equity criteria, the wider questions of efficiency and equity were not considered. For example, the more interesting question of the impact of the Palmakul co-operative society on the efficiency of resource allocation of the farmer was not studied. Moreover, the question of the impact of the co-operative society on the income of farmers was not directly confronted. In addition, the discussion of the power structure of the Palmakul Bank and its relationship to the socio-economic power structure in the area was not complete because of inadequate data. For example, a more complete delineation of the power structure of the co-operative credit society could have been made if the landholdings of the Board of Directors had been compared to the average landholding of the general membership. As well, if the villages had been classified according to caste, the power of the Reddi caste could have been more completely documented. Despite these qualifications, the major conclusions of this research study retain their basic validity.

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APPENDIX A

THE CROP LOAN SYSTEM

In this appendix, an explanation and critique of the crop loan system is presented. The system has been in operation in Maharastra and Gujurat since 1950. Various committees (especially the All India Rural Credit Survey Committee and the All-India Rural Credit Review Committee) recommended the crop loan system be implemented, but no action was taken until 1966 when the Reserve Bank of India issued a directive that the primary co-operative societies must operate on the basis of the crop loan system. Basically the system consists of: 1) a cash component that meets the needs for production with a loan limit set per acre equal to one-quarter of the average value of the gross produce in dry areas and one-third in irrigated areas; 2 2) a component in kind (fertiliser, pesticides, new seeds, etc.); 3) a cash component to meet the costs of extra labour used for the application of the new inputs, a limit being that the value should not exceed one-half the value of the inputs; and 4) a cash component that is equivalent to five per cent of the value of the produce sold in the previous year by the member through the marketing co-operative.[1] Components (2) and (3) are supposed to encourage the small farmer to apply new techniques but the small farmer very rarely hires labour so component (3) does not defray any costs for him. Component (4) which is supposed to meet some of the farmer's consumption needs is also of little importance to the small farmer since this type of farmer very rarely markets his produce through a marketing co-operative. The credit limit is determined by the repaying capacity which is set

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[1] K.C. Cheriyan, "Loaning Policies in India", in Agricultural Cooperative Credit in South-east Asia, (Bombay: Asia Publishing House, 1967), p. 123.

at one-half of the value of a farmer's gross output; the credit limit for short term credit is one-third of this repaying capacity whereas the limit for medium credit is one-sixth. A field workers' conference decides on the credit requirements based on acreage cultivated for each crop and the corresponding expected gross value. These requirements are then transmitted to the district co-operative bank which, on the basis of its available resources, adjusts the requirements, component (1) being the first one to be reduced.

The major advantage of this system is that it facilitates the implementation of an agricultural development programme. These farmers willing to undertake improved methods to receive the required aid provided by components (2) and (3). However, Cheriyan does note some problems.[1] First, there may be a tendency to discriminate in favor of large farmers if credit is based on repaying capacity. Since credit requirements are calculated on the basis of the value of gross produce, he warns that one must be wary when there is an unusual price rise or fall since credit requirements may not change as much as prices. He also points out that there will be difficulties in calculation of credit need when an area is under continuous cultivation. If the farmer grows various crops, repayment should coincide with the time of harvest of the most important crop. Finally, links with marketing societies are weak and enforcing the requirement that a certain amount

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[1] The following discussion is based on material from Cheriyan, "Loaning Policies in India".

of produce be sold through the marketing society may be difficult.[1]

Another problem pointed out by Frankel is that there is farmer unwillingness to use the fertilizer component because "they [the farmers] were obliged to take only the variety available at the cooperative, but also because private dealers were willing to advance fertilisers on delayed repayment terms, compared to the cooperative's insistence on a fixed schedule of repayment."[2] This leads to the criticism that the co-operative society is bureaucratically rigid, especially with respect to recoveries. Under the crop loan, recoveries are supposed to be made when produce is sold. The next season's loan is then supposed to be given immediately. But a member does not gain by repaying the loan quickly because "the District Cooperative Central Bank grants loans to the society as a whole only after the full recovery, or in some cases at least 75 per cent recovery, of the previous loan."[3] Consequently, there is a tendency on members' part to delay repaying until the recovery level of the society is close to 100 per cent. An implication then is that seasonality in recovery and disbursement of the loan is lost due to bureaucratic rigidities. In other words, credit may not be provided at the time that it is needed.

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[1] Myrdal makes the point that sharecroppers and small peasants produce little for sale as much goes to landlords and moneylenders; therefore, the crop loan system is of little benefit to them. See Myrdal, Asian Drama, II, p. 1336.

[2] Frankel, India's Green Revolution, p. 67.

[3] Somasekhara Rao, "Crop Loan System through Cooperative Central Banks", p. 227.

The final major criticism that can be made of the crop loan system is that the scale of finance usually does not have any relationship to the costs of production. A.C. Shah reports, the findings of Hinge, Patil and Dhongade were that the scales of finance adopted by co-operatives and others have no relation to production costs and, also, they are not uniform among lending agencies.[1]

This can be substantiated by referring to the Palmakul data. The scale of finance is determined by a Technical Group consisting of the presidents of the co-operative societies in the district and various extension agents. In Table A-1, the scale of finance for the year 1975-76 for the crops grown in the Palmakul area is presented. In contrast, Table A-2 shows the cost of production for these crops according to farm size.

One observation that can be made is that for paddy, the scale recommended barely meets the credit requirements of the small and medium farmers. On the other hand, it is well above the amount requied by the large farmer. For ragi, a similar trend is observed; farmers with up to eight acres require Rs. 500 per acre whereas the scale of finance is Rs. 400. Farmers with eight acres and above require only Rs. 200 and yet get a loan of Rs. 400. For jowar, the scale of finance is adequate for the small and medium farmers and excessive for the large farmer by Rs. 50. The cost of production for chilies which are primarily grown by large farmers is Rs. 500 whereas the scale of finance is Rs. 750, the amount of credit being excessive by an amount of Rs. 250. For castor, the scale of finance and cost of

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[1] A.C. Shah, "Rapporteur's Report", p. 454.

TABLE A-1

SCALE OF FINANCE FOR PRINCIPAL CROPS, 1975-76
(Rs.)

Crop	Estimated Value of Yield per Acre	Repaying Capacity	Cropwise Per Acre Cash	Scale Kind	Recommended Total
Paddy	1400	700	500	200	700
Jowar	450	225	100	100	200
Ragi	800	400	300	100	400
Chillies	1750	875	500	250	750
Castor	1000	500	400	100	500
Groundnut	2000	1000	500	150	650

Source: Palmakul Co-operative Rural Bank

TABLE A-2

COSTS OF PRODUCTION FOR
PRINCIPAL CROPS BY FARM SIZE
(Rs.)

Size of holding/crop	Paddy	Jowar	Ragi	Chillies	Castor	Groundnut
0 to 3 acres	750	200	500			
3 to 8 acres	750	200	500			
8 acres & above	500	150	200	600	500	100

Source: Farmers Interviewed.

production equal each other. For groundnut, the cost of production was Rs. 100 per acre whereas the scale of finance was Rs. 650.

An explanation for the discrepancy between scale of finance and costs of production is that the scale of finance is based on the value of yield per acre. Though extension officers at the Technical Group meeting are supposed to convey information on the actual costs of production, there may be a break in the communications chain. Consequently, a crop with greater yield value will have a credit limit not necessarily related to its actual costs of production; this expecially holds true for cash crops which are mostly grown by large farmers. A clear interpretation of this data is that there is an unequal distribution of credit, i.e., large farmers tend to receive credit far above their requirements due to the fact that the crops they grow have a greater marketable value.

In conclusion, the crop loan system has definite problems that restrict the effectiveness of co-operative loans.

APPENDIX B

STATISTICAL BACKGROUND ON PALMAKUL FARMERS

Thirty-one farmers were interviewed at the Palmakul Rural Co-operative Bank at the time of the disbursement of the fertiliser component of the crop loan in June, 1975.[1] Those automatically excluded from the sample due to the particular timing and place of interviewing were landless agricultural labourers who on the whole do not receive loans from the society and protected tenants who receive only an amount of Rs. 500. Those farmers interviewed were asked particulars about their families, costs of production, income and expenditure. A copy of the questionnaire used is attached at the end of this appendix.

Table B-1 is a detailed outline of the particulars of the land operated by the farmers who were interviewed. It is interesting to note that 53 per cent of the land operated by small farmers was purchased whereas the corresponding percentage for medium farmers was 16. For large farmers, the percentage was 48 per cent, close to that of small farmers. Another interesting point is that 84 per cent of the land operated by small farmers was wet land compared to 29 and 15 per cent for medium and large farmers respectively.[2] But the figures must be viewed with the understanding that most of the wet land was land by a river that had no irrigation facilities (i.e., it is rainfed or inundated land). Small farmers have no land that is irrigated

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[1] Though the sample was "random", it can not be considered as random from a strict statistical viewpoint.

[2] An important point to be noted here is that small farmers own land that may have underground water potential, the inference being that medium-term loans for the purpose of irrigation may be relatively successful.

TABLE B-1

BREAKDOWN OF LAND OPERATED BY INTERVIEWED FARMERS ACCORDING TO TYPE
(acres)

Name	Acreage Operated	Ancestral	Purchased	Leased-In	Wet Land[a]	Irrigated[b]	Dry
SMALL FARMERS							
B. Yaliah	1 1/2		1 1/2		1 1/2		
S. Maliah	2 1/2		2 1/2				2 1/2
M. Rajdiah	2 1/2		2 1/2		2 1/2		
P. Gangaiah	1		1		1		
Shivrajah	1		1		1		
N. Ramiah	2 1/2	2 1/2			2 1/2		
Chandriah	2	2			2		
Lakshmiah	3	3			3		
Total	16	7 1/2 (47.0)	8 1/2 (53.0)		13 1/2 (84.0)		2 1/2 (12.0)
MEDIUM FARMERS							
Laxma Reddy	4	4			4		
Eshwariah	4	4			2		2
Chandriah	4		4			4	
Devujya	11	6		5			11
Pilli Sailu	5	5			1/2		4 1/2
Masiah	6	2	4		3		3
P. Chinnaya	4	4			4		

Table B-1 - continued

Name	Acreage Operated	Ancestral	Purchased	Leased-In	Wet Land[a]	Irrigated[b]	Dry
MEDIUM FARMERS (cont)							
K. Anjaiah	4.24	.24		4	.24		4
Laxmiah	5	4	V			2	3
Rup Singh	5	5					5
Narasimha	3.5	3.5			2		1.5
Total	55.74	37.74 (68.0)	9 (16.0)	9 (16.0)	15.74 (28.0)	6 (11.0)	34.(61.0)
LARGE FARMERS							
Bhikya	11	11					11
B. Chinna Reddy	77	20	50	7		3	27
Narayana Reddy	10		10			2.5	7.5
G. Reddy	10		10		2		8
P. Parvataloo	10.5	10.5			2.5		8
Jogi Reddy	25	25			4	8	13
A. Kristiah	12		12			3	9
N. Narayana Swami	11	10	1		8	3	
N. Jangaiah	25	5	20		5	2	18
K. Chandriah	18	15	3		4		14
Kadiah	10	10			2		8
Tharya	10	5	5				10
Total	229 1/2	111 1/2 (49.0)	111 (48.0	7 (3.0)	23 (15.0)	18 1/2 (10.0)	136.5 (75.0)

Table B-1 - continued

Name	Acreage Operated	Ancestral	Purchased	Leased-In	Wet Land[a]	Irrigated	Dry
ALL FARMERS	301.24	156.74	128.5	16	52.24	24.5	173

Notes: a - wet land is defined as land by the river that has no irrigation facilities.
b - irrigated land is land irrigated by either a well, tank, or pump (diesel or electric)

Source: Compiled from interviews of farmers.

whereas 11 per cent of the land operated by medium farmers and 10 per cent of the land operated by large farmers were irrigated. An implication of this data is that the small farmer usually purchases land by the river (that has no irrigation facilities) or leased-in land to extend the amount of land he operates. The medium farmer, for the most part, operated ancestral land although 16 per cent of his land was leased-in land; 61 per cent of his operated area was dry with the rest being wet or irrigated land. On the other hand, the large farmer had fairly even proportions of ancestral and purchased land with only 3 per cent of his operated land being leased-in. The large farmer also operated primarily on dry land (75 per cent) with about 25 per cent of his land, on average, being wet or irrigated.

The control of the large farmer is emphasized when the share of each group of farmers in total land is analyzed. Table B-2 presents the share of each group in total land operated, purchased land, ancestral land, wet land, and irrigated land. One immediately notices that large farmers operated 76 per cent of total operated area whereas small and medium farmers operated only 5 and 19 per cent respectively. This uneven control is further emphasized when one looks at the figures for purchased land. Small and medium farmers have each purchased 7 per cent of total purchased land while the large farmers have purchased 86 per cent of total purchased land. Consequently, the skewedness in the figures for ancestral land is not surprising. 71 per cent of total ancestral land is the ancestral land of large farmers whereas the share of small and medium farmers is 5 and 24 per cent respectively. Not so surprisingly, the figures for wet land show a more even distribution. The share of small farmers is 26 per

TABLE B-2

PERCENTAGE SHARE OF TOTAL OPERATED AREA, TOTAL WET AREA, TOTAL IRRIGATED AREA, AND TOTAL PURCHASED AREA BY FARM-SIZE (percentage)

Size	Total Operated Area	Total Wet Area	Total Irrigated Area	Total Purchased Area
0 to 3 acres	5.0	26.0	0	7.0
3 to 8 acres	19.0	30.0	24.0	7.0
8 acres & above	26.0	44.0	76.0	86.0

Source: Compiled from figures in Table B-1.

cent, of medium farmers 30 per cent, and of large farmers 44 per cent. For irrigated land, the inequality of distribution appears again. The share ranges from zero per cent for the small farmer to 24 per cent for the medium farmer and 76 per cent for the large farmer. In the total picture, therefore, the share of the small farmer is quite insignificant. The biasedness shows up more clearly in our sample when one considers that 8 small farmers operated 16 acres whereas eleven medium farmers operated 55.74 acres and twelve large farmers operated 229.5 acres. That most of land purchased is purchased by the large farmer gives additional support to Griffin's contention of an imperfect land market in the rural sector of a developing economy (see Chapter V).

If costs of production and returns were similar for different sized farmers, the situtaion might not be so discouraging for the small farmer. Table B-3 details the costs of production for each farmer interviewed for the major crops he grew. In paddy, the cost of production varied from Rs. 200 to Rs. 800 per acre with the large

TABLE B-3

COSTS OF PRODUCTION FOR MAJOR CROPS

FOR INTERVIEWED FARMERS

(Rs.)

Name	Acreage Owned	Crops						
		Paddy	Jowar	Ragi	Castor	Chillies	Vegetables	Groundnuts
B. Yallah	1 1/2	750						
S. Mallah	2 1/2		200	250		600	100	
M. Rajaiah	2 1/2	600						
P. Gangaiah	1	800						
Shivrajan	1	800						
N. Ramiah	2 1/2	700	100	500				
Chandriah	2	750						
Lakshmiah	3	750	200	500				
Laxma Reddy	4	800		300				
Eshwariah	4	700	300	200				
Chandriah	4	800	200	100			80	
Devujya	6		200			500		
Pilli Sally	5	500		500				
Masiah	6		200	500			100	
P. Chinnaya	4			400				
Kavali Anjaiah	6.24	800	300	500				
Laxmaiah	5	700	200	500				
Rup Singh	5		500		500			

Table B-3 - continued

Name	Acreage Owned	Paddy	Jowar	Ragi	Castor	Chillies	Vegetables	Groundnuts
Narsimha	5.5	500	Bhikya					
Bhikya	11		300	400			100	
B. Chinna Reddy	70	500	150	150		500	100	
Narayana R Reddy	10	750	400			330		
G. Reddy	10	500	200	200		500		
P. Parvataloo	10.5	500	150	200	100			
Jage Reddy	25	200	50	50	5	500	100	
A. Kristiah	12	500	200	400			200	
N. Narayan Swami	11	500	150	200	150			
N. Jangulah	25	600	200	300	150			
Katula Chandriah	18	500	150	200				
Kadiah	10		200		150			
Tharya	10		200	200	500			

Source: Compiled from interviews of farmers.

farmer facing costs near the lower end of the scale and the medium and small farmer facing costs near the higher end of the scale. In jowar, the cost of production was essentially between Rs. 150 and 200 for almost all farmers. For vegetables, the situation was the same with most farmers estimating cost at Rs. 100. The situation in ragi was not similar with small and medium farmers estimating costs between Rs. 400 and 500 and large farmers estimating near Rs. 200. For castor, the large farmer tended to estimate between Rs. 100 and 150 while the medium farmer estimated Rs. 500. Chilies were grown mostly by large farmers and the cost was estimated to be approximately Rs. 500. The one small farmer who grew chilies estimated the cost to be Rs. 600 per acre.

These differences in cost could not be definitely attributed to economies of scale as most farmers were unwilling to give a breakdown of their costs. Consequently, one could not delineate which costs varied inversely with increase in size of land. One notable feature was that many of the large farmers said they did not sell their grains, especially jowar and ragi, but used these grains to pay their labourers and servants in kind. One cannot fully evaluate how much lower is the value of this payment in kind than the wage rate or how must it contributes to a reduction in costs of production. Yet it is a possibility that must be considered.

A more important variation to consider is differences in income and expenditure among size classes of farmers. In Table B-4, a detailed breakdown of income and expenditure for each farmer interviewed is presented. A qualification that has to be made is that these figures are estimated rather than actual figures. Since no account

TABLE B-4

BREAKDOWN OF INCOME AND EXPENDITURE FOR INTERVIEWED FARMERS
(Rs.)

	Income				Expenditure						
Name	Income from land	Subsidiary income	Income from outside village	Total	Food	Clothing	Shelter (repairs)	Education of children	Health	Cere-monies	Total
SMALL FARMERS											
B. Yallah		2,400/yr		2,400	1,200	1,000	200	50	300	200	2,950
S. Mallah	1,500			1,500	1,800	500	300	-	100	150	2,850
M. Rajaiah	3,000			3,000	1,200	700	100	-	100	100	2,200
P. Gangaiah	800			800	720	100	150	-	150	50	1,170
Shivrajan	3,000			3,000	3,600	800	400	-	500	1,500	6,800
Ramiah	2,000			2,000	3,600	500	-	-	500	500	5,100
Chandriah	2,000			2,000	3,600	600	250	-	800	1,200	6,450
Lakshmaiah	2,000			2,000	3,600	500	-	-	500	500	5,100
MEDIUM FARMERS											
Laxma Reddy	1,400		2,400	3,800	1,200	500	200	-	100	200	2,200
Eshwariah	2,000			2,000	2,400	400	300	-	200	300	3,600
Chandriah	2,000			2,000	2,400	200	-	-	500	50	3,150
Devujya	2,000	600		2,600	4,800	150	-	-	10	300	5,260
Pilli Sailu	2,000			2,000	3,600	600	150	-	600	800	5,750
Maslah		1,200		1,200	1,800	600	-	60	100	240	2,800
P. Chinnaya	4,000			4,000	720	1,000	-	100	100	300	2,220

Table B-4 - continued

Name	Income				Expenditure						
	Income from land	Subsidiary income	Income from outside village	Total	Food	Clothing	Shelter (repairs)	Education of children	Health	Cere-monies	Total
MEDIUM FARMERS (cont)											
Kavali Anjaiah	1,500		600	2,100	1,000	300	-	-	500	200	2,000
Laxmaiah	4,000			4,000	1,000	1,500	-	100	1,000	500	4,100
Rup Singh	3,000			3,000	3,600	600	250	-	250	800	5,500
Narasimha	3,000			3,000	3,600	900	-	-	900	300	5,700
LARGE FARMERS											
Bhikya	2,500	300		2,800	3,000	720	-	-	240	300	4,260
B. Chinna Reddy	30,000			30,000	2,400	2,000	-	-	400	1,500	5,900
Narayana Reddy	6,000			6,000	720	1,000	300	300	200	200	2,720
G. Reddy	10,000			10,000	2,400	1,500	150	1,200	500	1,000	6,750
P. Parvataloo	2,800	900		3,700	2,400	800	150	-	100	200	3,650
Jogi Reddy	30,000		3,000	33,000	6,000	3,000	500	1,000	1,000	700	12,200
A. Kristiah	3,000			3,000	1,200	500	100	-	200	700	2,700
N. Narayan Swami	8,000			8,000	4,800	1,000	400	-	100	600	6,900
N. Jangaiah	10,000			10,000	6,000	1,000	300	300	500	500	8,600
Katula Chandriah	4,000	300		4,300	2,400	400	100	-	400	300	3,600
Kadiah	3,000	600		3,600	2,400	500	150	-	-	400	3,450
Tharya	2,800			2,800	6,000	600	250	250	250	800	8,150

Source: Compiled from interviews of farmers.

books are kept and almost all transactions are in cash, the figures on expenditure were usually rough estimates. For income also, farmers (especially small and medium farmers) were not completely sure as to what their actual income was. Another qualification is that sometimes farmers were interviewed together and therefore they influenced each other's estimates, especially on the expenditure side. The table must be analyzed with the understanding that the figures for income and expenditure are rough averages rather than actual figures.

The main source of income for all farmers was that from land. On the expenditure side, food and clothing were the major expenditures for all farmers. All of the small farmers except Shivrajan could not meet their expenditure with their income. Shivrajan had an income of Rs. 3,000 whereas his expenditure was Rs. 2,200. For the medium farmers, the situation was similar. All farmers except Laxma Reddy and P. Chinnaya could not meet their expenditures. The differential between income and expenditure for Laxama Reddy and P. Chinnaya was much higher than for the small farmer, Shivrajan.. All large farmers except Bhikya and Tharya could meet their expenditures. An interesting point is that these two farmers have no wet or irrigated land. One observation is that the financial position of the large farmers is significantly sounder than that of the small and medium farmers. This gives additional support to the contention that the large farmer is in a more secure financial position than the small farmer.

A final point to be considered is the effect of medium-term loans on the cropping pattern of recipient farmers. Table B-5 outlines the cropping pattern of farmers two years before and two years after the loan. An examination of the data leads one to conclude

TABLE B-5

CROPPING PATTERN OF RECIPIENTS OF SPECIAL MTO LOANS, BEFORE AND AFTER LOAN DISBURSEMENT
(acres)

Name	1968-69	1973-74
A. Yadi Reddy	3.00 - Jowar	4.00 - Paddy
	3.00 - Bajra	3.00 - Vegetable
	4.00 - Chillies	3.00 - Wheat
	2.00 - Vegetable	2.00 - Jowar
K. Anjaiah	3.00 - Ragi	3.00 - Vegetable
	5.00 - Jowar	3.00 - Wheat
	2.00 - Groundnut	4.00 - Paddy
	4.00 - Sunflowers	2.00 - Till
V. Sheshraj	1.00 - Flower (rose)	2.00 - Rose
	3.00 - Paddy	1.00 - Sunflower
	5.00 - Onions	5.00 - Wheat
	2.00 - Vegetable	2.00 - Pulses
	4.00 - Jowar	4.00 - Paddy
Heeraman	5.00 - Castor	3.00 - Paddy
	5.00 - Jowar	2.00 - Wheat
	2.00 - Paddy	2.00 - Vegetable
	5.00 - Bajra	10.00 - Jowar
P. Laxma Reddy	4.00 - Paddy	2.00 - Paddy
	1.00 - Vegetable	3.00 - Vegetable
	5.00 - Jowar	
K.M. Osman	3.00 - Sunflowers	5.00 - Paddy
	5.00 - Groundnuts	3.00 - Wheat

Table B-5 - continuted

Name	1968-69	1973-74
G. Dasharath Ram Rao	4.00 - Castor	5.00 - Paddy
	2.00 - Onions	4.00 - Tumeric
	2.00 - Tumeric	1.00 - Arvi
A. Chinnapa Reddy	5.00 - Groundnuts	3.00 - Paddy
	5.00 - Ragi	8.00 - Chillies
	5.00 - Wheat	4.00 - Vegetable
B. Narayana Reddy	5.00 - Wheat	6.00 - Chillies
	3.00 - Paddy	2.00 - Cotton
	3.00 - Groundnuts	4.00 - Vegetable
P. Venhat Reddy	3.00 - Bengalgrams	4.00 - Paddy
	4.00 - Vegetable	5.00 - Wheat
	2.00 - Paddy	
Kamla	10.00 - Castor	4.00 - Paddy
	5.00 - Jowar	2.00 - Wheat
	3.00 - Vegetable	2.00 - Tobacco
	2.00 - Jowar (white)	5.00 - Jowar
		2.00 - Castor
A. Kistaiah	1.00 - Horsegram	3.00 - Paddy
	4.00 - Bajra	2.00 - Wheat
	3.00 - Vegetable	2.00 - Groundnuts
	2.00 - Pulses	3.00 - Till

Source: Palmakul Co-operative Rural Bank

that the effect of the special MTO loan is to encourage the farmer to move away from dry land crops. A striking change is that with an assured water supply, the acreage under wheat increased significantly. The acreage under wheat before the loan was ten acres and after the loan was twenty-one acres. In paddy, as well, the acreage increased from fourteen acres to forty-six acres. There was also an increase in acreage under commercial crops such as cotton, till (sesame), and tobacco. A clear interpretation of this data is that the co-operative society through its loaning policies can affect the cropping pattern or, in more general terms, the modernisation of agriculture.

CULTIVATORS SCHEDULE

Village Taluk District

I. 1. Name of the farmer

2. Native place

3. Present address

4. Caste

5. Is the present occupation traditional?
If not, since how long?

6. What are the major crops grown by your Kharif (1)
Rabi

7. Size of holdings

Size of holding	Acreage		No. of plts are	
	Owned		Leased in	Leased out
	Ancestral	Purchased		
1. Wet				
2. Irrigated dry (type of irrigation when started)				
3. Dry				
4. Garden/orchards				
5. Others				
6. Total				

7. Family composition with educational particulars

Sl. No.	Name	Relationship to head of the family	Age	Literacy illiteracy	Earning status EHDM	Marital status U.M.	Remarks

8. Are you a member of any co-operative society?
The date of joining
Did you ever been elected to the Board of management. Mention the date.

9. Sources of credit

Amount sanctioned by Bank	Individual Investment	Other sources relatives/moneylenders/ traders

10. For how many years are you enjoining Bank Credit.
How much time is being taken for sanctioning the loan.

11. Mode of payments of loan.

Purpose	Procedure	Amount of loan advance		Total
		cash	kind	

12. Crop and cropping pattern together with an estimate of the cost.

Extent of land	Particulars of crop raised	Total amount needed	Total amount actually invested

13. Is the loan sanction adequate

Loan amount	Purpose	Excess/short	Remarks

14. Returns from Investment.

Crops raised	Total cost	Total returns	Additional income

15. Income pattern.

1. Income from land
2. Income subsidiary other than land.
3. Income viewed from outside the village
4. Total

16. Expenditure pattern — Annual expenditure.

1. Food
2. Clothing
3. Shelter (household)
   Rent/owned (repairs)
4. Education
5. Health
6. Ceremonies and functions
7. Clearance of prior debts
   (principal and interest)
8. Misc.